

THE RAILWAY GAZETTE

A Journal of Management, Engineering and Operation
INCORPORATING

Railway Engineer • TRANSPORT • The Railway News

The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.

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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE in that the size of the page has been reduced from 9 in. x 12 in. to 8½ in. x 11½ in. The type area of the page remains the same, namely, 7 in. x 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 4 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

An Economic General Staff

SUPPORT for the suggestion which has been made on several occasions in our columns that to cope efficiently with new industrial and economic conditions, an organisation based on the principles of the general staff should be created, was forthcoming last week from Sir William Beveridge. Since our issue of August 15, 1941, when we first suggested the bringing into being of an industrial general staff, the sole aim of which would be to make the best and most efficient use of the industrial fabric and its ramifications with the life of the nation, the idea has been developed by a number of persons. It has been suggested, for instance, that a transport general staff should be formed, and in his presidential address to the Institution of Production Engineers, Sir Ernest Lemon, who has been closely associated with the idea since its inception, explained the need not only for an Industrial General Staff but also for a staff college in which personnel could be trained. Sir William Beveridge believes that the maintenance of employment after the war involves, at the very least, the making of a national design for the use of our national resources for meeting our needs in the aftermath of the conflict, and that to make that design, an economic general staff is essential. If execution of that design involves further direct intervention by the State in the economic sphere, new types of State servants, organised otherwise than in the existing Government Departments, are required. New jobs, he urges, need new methods.

L.N.E.R. Engineering Organisation

In our August 21 issue we recorded an important change in the organisation of the London & North Eastern Railway. At that time Mr. V. M. Barrington-Ward was appointed Assistant General Manager (Operating) with all-line responsibility for the movement of traffic and for the distribution of locomotive power between the three areas into which the L.N.E.R. system is divided. Previously the L.N.E.R. had had no chief operating officer, chief goods or passenger manager, or chief civil engineer for the whole system. When the change was made it was announced as a wartime measure. Now a further change has been made in L.N.E.R. organisation, this time relating to the Engineers' Department. Mr. J. C. L. Train, who last year was appointed Engineer, Southern Area, has now been made Chief Engineer for the whole system. He will have the help of three Area Engineers who at present report to the Divisional General Managers, and he will also have an Assistant Chief Engineer at headquarters. It would appear that the general trend is to modify the area organisation, and it may be assumed that the Chief Engineer will lay down standards for maintenance and new construction. He will also deal with large schemes, but it is understood that the Area Engineers will be left free to communicate with the Divisional General Managers and their traffic officers about minor works up to a specified limit. Mr. Train's appointment was recorded in our last week's issue.

Railway Seat Reservation

The reservation of train seats has again attracted a good deal of publicity, and it has been suggested that a railway porter and a porter from the Euston Hotel stood on Platform 14 at Euston for half-an-hour, on November 26, to reserve three first class seats, and that a paper marked "not-for-public-use" was pinned to the seats. The Daily Mail of December 5, which devoted some space to the matter, came to the conclusion that one cannot reserve a seat in a public compartment by tipping a porter to post up a "not-for-public-use" label, which is authorised by the stationmaster. The position of the railway companies in this matter is clear. They receive instructions from the Ministry of War Transport and act on them. Obviously, if a person is able to persuade a porter to secure a seat when the train comes into the station, or before it fills up, that is a facility which, in theory at least, is open to every traveller, but it does not come within the category of reservation as it was understood before present restrictions became operative. There are as have been pointed out in our columns previously, seven exceptions to the general rule that seats in railway carriages may not be booked. Accommodation may be reserved for members of the Forces on duty, prisoners of war, judges on circuit, Cabinet Ministers, high Government officials, Service couriers, and lunatics. It is not

CHRISTMAS PUBLISHING ARRANGEMENTS

To conserve paper and reduce postage of copies in Christmas week, the issues of THE RAILWAY GAZETTE dated December 18 and 25 will be combined and published on December 18. There will thus be a fortnight's interval between the combined December 18 and 25 issue and the next regular weekly issue, due to be published on Friday, January 1

always easy for the casual onlooker to discern the category into which members of certain of these privileged classes fall, and it may be that misapprehension has been caused by observation of the procedure in accordance with the present restrictions.

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Machine Tools and the War Effort

The vital importance to the war effort of an adequate supply, and the best possible utilisation, of machine tools scarcely needs to be stressed. Indeed, this is a matter to which all the belligerents have long devoted earnest attention. When Sir Percy Mills addressed the British Association of Machine Tool Merchants recently, he declared that at present the demand for machine tools was as great as ever, because we were now entering the replacement period. He added that in pre-war days machine tools were allowed to become far too old, and at this point comment may be made that this statement might usefully be accepted as a warning for the future. Every endeavour is being made at the present time to see that machine tools are placed in the right hands and in this way the best use of manpower may be ensured. Sir Percy Mills said he was not in favour of too much bureaucratic planning in the control of machine tools. He believed in the liberty of the individual, so long as the individual behaved in the proper way. The reason for the existence of the Machine Tool Control was to ensure that the right tools were available at the right time, and in the right place. There can be no doubt that the war has thrown into prominence the value of the machine tool industry of this country. Its usefulness will be equally great in the years of reconstruction after the war.

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Overseas Railway Traffic

Among Brazilian railways the gross earnings during the past few weeks have shown steady increases. In the first 48 weeks of 1942 the Great Western of Brazil takings of £546,900 reveal an improvement of £69,000, and those of the Leopoldina are £188,615 higher. The San Paulo in the 47 weeks to November 22 has secured gross receipts of £1,732,045, marking an advance of £15,226. On the Central Uruguay the decrease is being gradually reduced, and at the end of the 22nd week of the financial year has come down to £17,855. United of Havana traffic continues their welcome rise and the figure of £901,366 for the 22 weeks of the financial year shows an improvement of no less than £485,943. Six British-owned railways in Argentina secured traffic increases in the 21st and 22nd weeks of the financial year. The respective gains are:—Central Argentine £87,936, Buenos Ayres & Pacific £35,280, Buenos Ayres Great Southern £33,960, Buenos Ayres Western £16,860, Entre Rios £8,730, and Argentine North Eastern £5,844.

	No. of week	Weekly traffic	Inc. or decrease	Aggregate traffic	Inc. or decrease
Buenos Ayres & Pacific*	22nd	100,800	+18,000	1,915,620	+210,720
Buenos Ayres Great Southern*	22nd	176,280	+13,800	3,030,420	+201,180
Buenos Ayres Western*	22nd	62,520	+6,420	1,124,580	+30,300
Central Argentine*	22nd	142,209	+49,464	2,706,780	+331,821
Canadian Pacific	47th	1,052,600	+84,000	45,030,600	+6,151,800

* Pesos converted at 16½ to £

Gross earnings of the Canadian Pacific Railway for the first ten months of 1942 amounted to £41,985,200, an increase of £5,978,400.

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Maximum Passenger Trainloads

With the reduced speed of express passenger trains that were enforced from the bringing into operation of British war timetables, substantial additions to trainloads became possible without additional demand on locomotive power. In general, only the London & North Eastern Railway appears to have taken full advantage of the fact, and on occasion has run trains in single units up to 25 and 26 bogie vehicles, and 20-coach trains with a tare weight of 630 to 640 tons are now a commonplace on the principal main line between Kings Cross, Doncaster, Newcastle, and Edinburgh. These lengthy formations, although they make possible considerable economies in locomotives and personnel, and can be handled to time, apart from signal and permanent way delays, by both 4-6-2 and 2-6-2 locomotives, are not entirely advantageous. At many intermediate stops they must be drawn up twice, and at Kings Cross they overlap by a large margin the longest platforms. Passengers arriving at the rear end of such trains may be prevented by the locking of vestibule doors from moving with their hand luggage to a more forward position preparatory to alighting, and may have their journeys forcibly lengthened while the rear end of the train is being detached and shunted into another platform. The L.M.S.R. Pacifics are rostered, over a considerable part of the West Coast main line, to take a maximum of 655 tare tons, equivalent to 21 or 22 bogie vehicles of the mixed compartment and open stock now used on the principal trains, but it is rare to see any greater formation than 17 or 18 cars. Platforms at Rugby, Crewe, Preston, and Carlisle could comfortably accom-

modate formations of 20 to 22 vehicles, but the main obstacle is doubtless the more limited platform length at Euston.

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The Furka-Oberalp Transformation

It is remarkable how the strategic necessities of a time of war, even in a neutral country, will bring to execution projects which in peacetime had been shelved resolutely on account of cost. In this category comes the electrification of the 60½ miles of the narrow-gauge Furka-Oberalp Railway in Switzerland, one of a group of three amalgamated lines which includes also the Visp-Zermatt and Schöllenen Railways, and on which electric working throughout was brought into operation on July 1, as briefly recorded in our September 4 issue. In the past the winter difficulties of working over the Oberalp and Furka summits, at 6,720 and 7,100 ft. altitude respectively, and the scantiness of the traffic, have caused these sections to be closed entirely during that season, and through working to be confined to four months in the year. The Furka will remain closed during the winter months, and it is intended to take down the overhead electrical equipment from the more exposed lengths, to preserve it from damage. But the avalanche galleries and snow protection on the Oberalp section will make possible all-the-year-round working between Andermatt and Disentis. By changing the Schöllenen electric working to 11 kV, 16½ cycles, the three railways in this group come into line, and their rolling stock becomes completely interchangeable, as it does also with that of the Rhaetian-Bernina group, with which an end-on junction is made at Disentis. The effect of electrical operation on the Furka-Oberalp line, with its 24 miles of rack-equipped track and maximum gradients of 1 in 9, has been revolutionary. The powerful four-motor 1,400 h.p. locomotives now brought into use have cut the best through time between Disentis and Brigue from 4½ to 3½ hr. at one stroke.

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Transport Links with Alaska

All forms of transport are being pressed into service for the improvement of strategic lines of communication between the United States and Canada on the one hand, and Alaska on the other. In peacetime the normal means of communication was by coastal steamship, with railways and roads linking the ports with the interior. War conditions made this insecure, and other land links have been, and are being, provided with remarkable promptitude and engineering skill. At first, air bases were established, but many of these were isolated at certain seasons of the year, and had to be serviced by air. Then, outstanding steps were taken for the construction of a highway, based on the surveys made by the Alaskan International Highway Commission. The highway which is now an accomplished fact is a well-drained and carefully-graded military road, although much remains to be done before it can be regarded as a peacetime highway. Its development forms the subject of a brief article at page 587. Finally, schemes for a through railway appear to be well advanced. Since the early spring, a survey has been in hand for a line approximately along Route "B" proposed by the Alaskan International Highway Commission, which is stated to be the shortest possible direct route between Prince George and the Alaska Railroad, and is 1,300 miles long. Further details are given at page 586.

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"Railway Transport Charges"

In last week's issue under the above heading we referred to "a remarkable article" in *The Times Trade & Engineering* for November on railway charges attributed to the journal's Railway Correspondent. We said that in the course of this article it appeared that the Traders Co-ordinating Committee and the Ministry of War Transport but not the railway companies had been discussing the level of railway charges. Our attention has been drawn to the fact that the article in question merely summarised the answer of the Traders Co-ordinating Committee to the replies received from the Minister of War Transport about its complaint (previously reported in the press) that in the committee's view the published revenue figures showed no justification for the increased charges for railway transport imposed under the first agreement between the Government and the railway companies. In commenting on the article we said: "The railway correspondent of *The Times Trade & Engineering* views with considerable alarm the prospect that after the war railway rates may be increased because the cost of railway outgoings has increased. . . The railway correspondent who wrote the article should know well enough that the railways alone in this country are required to show annually the economy of their work in a court of law." What *The Times Trade & Engineering* report actually stated on this point was: "A statement by the Ministry that the increase now in operation may be insufficient to put railway charges on an economic basis under post-war conditions, but is at least a step in that direction, is regarded by

the committee as a cause for alarm if it means that the whole trend of railway rates policy is designed to raise the general level of rates in order that they may be on what is called an economic basis under post-war conditions." Our attention has been drawn by the Railway Correspondent of *The Times Trade & Engineering* to the fact that our article attributed to him an expression of opinion, whereas he was merely reporting the views held by the Traders Co-ordinating Committee, and accordingly we tender him our apologies.

Intensive Wartime Traffics

There are many indications that the heavy wartime traffics which are being moved on the British railways are likely to reach a winter peak during the coming months, and some weeks ago it was officially estimated that at least an extra 2,000 goods trains a week, compared with last winter, will need to be run in order to accommodate increased military and war production traffics. No precise figures are likely to be made available during the continuance of the war, but it is obvious that the increased tempo of hostilities, coupled with the fact that petrol and rubber shortages are restricting the help which can be afforded by road transport, will throw added burdens upon the railways. The physical condition of the British railways has been a subject to which considerable attention has been devoted, and the ability of the main lines to handle whatever is required of them has been assured by the speedy execution since the outbreak of war of many new works which it is inexpedient at the moment to describe. New lines have been constructed to serve hundreds of war factories; widespread schemes of railway wartime improvements have been effected; new marshalling yards have been built and others extended; many new goods loop lines and sidings have been installed; running lines have been doubled and quadrupled; new signalling has been introduced; and thousands of miles of telephone wires have been laid to provide effective control of train movements throughout the country.

The Transport Situation in Germany

The general transport situation in Germany this autumn was described in the *Frankfurter Zeitung* of October 15 as being on the whole easier than last autumn. That paper attributes the improvement primarily to the various measures for the organisation of transport which have been taken since June last and which were based on the lessons learned during the previous autumn. The efforts made to increase the use of the inland waterways, and thus to reduce the burden on the railways, are said to have met with success. As it was feared that many firms, finding railway transport more convenient, would wish to dispatch their goods by rail this winter as in the past, efforts have been intensified to encourage the continued use of inland water transport. Another reason for the general improvement in the situation is said to be the change in transport requirements in the East. Large portions of the Occupied Eastern Territories which last year were still in the battle zone are now becoming economically stable and supplies can be obtained from them. This has resulted in a substantial reduction in the number of goods wagons used for the transport of goods between Western Germany and the Occupied Eastern Territories. On the other hand, the number of wagons used for the transport of goods within the Occupied Eastern Territories is increasing, but the total length of haul is very much shorter. This autumn the principal German difficulties are said to be with road transport, and not with either railways or inland waterways. The transport of goods from the harbours of the inland waterways, and from the railway goods yards, to the consumer will need the use of every available means, including hand carts.

"Austerity" Locomotives from America

Among the minor effects of a war are new trends in fashion, not only in human clothes and customs, but also in engineering. The striving for economy in the construction of material necessities—economy in both raw materials and labour—is giving rise to articles of the utmost simplicity in design. To these the term "austerity" has been aptly applied. As we have already indicated in this journal, the principles on which "austerity" goods are produced are beginning to apply in the field of locomotive construction. A British "Austerity" locomotive was described in our issue for November 20; the German equivalent was described in our issue for December 4, and now, in this issue, we are able to give particulars of the American version. All three engines are generally similar in that they have been designed with the ability to haul heavy trains over relatively light or hastily-constructed tracks at low to moderate speeds. At the same time they are intended to be capable of holding their own in normal main-line working, and thus to render a good account of themselves in the best, as well as in less favourable, circumstances.

"Wagons—Big and Small"

ON November 27 the *Railway Review* published an article on "Wagons—Big and Small," written by "Railway Economist." Briefly, his argument is that British railway goods and mineral transport is the slowest in the world because of the wilful and persistent blindness of the railway companies in not converting their "small" wagons to those of 20, 40, or 50 tons capacity. In support of this, he alleges it is "quite common" for a truck-full of traffic to take several days to travel only 50 or 100 miles as compared with a next-morning delivery which would be given with unfailing regularity in any other country. Such remarks are of little value without supporting evidence, but if his sweeping assertions as to transit time in this country are intended to refer to pre-war practice, they are not confirmed by periodical tests taken by the companies. Odd wagons of traffic may occasionally suffer delay through a variety of causes, but such exceptional cases afford little justification for his general statement. If his remarks are intended to apply to present circumstances, they are equally incorrect as a general proposition, notwithstanding the serious interference with normal working which is caused by the very large number of special trains now being run daily for Government purposes. He refers to quantities of grain, potatoes, sugar beet, and fresh vegetables being dispatched in train loads from one consignor to one consignee—a statement which is largely imaginative—and then, perhaps with a sudden awakening to reality, adds "or in sufficient quantities to fill one or more 20-ton, 40-ton, or 50-ton trucks." He makes frequent references to the railways using 10-ton wagons, a statement which clearly indicates his lack of authority as a "Railway Economist," as a glance at the Ministry of Transport statistics would have shown him that the 12-ton wagon has been the railway standard for merchandise traffic for several years and now represents over 60 per cent. of the total stock.

He fails to appreciate that, for obvious reasons, the replacement of wagons by those of a higher capacity must of necessity be a gradual process and must from a competitive point of view be conditioned by the requirements of the traders rather than by theoretical considerations. He conveniently ignores the fact that between 1928 and 1938 the number of railway-owned merchandise wagons of 10-tons and under 12-tons capacity declined from 45 per cent. to 29 per cent. of the total, and the number of 12-ton wagons rose from 35 per cent. to 62 per cent. of the total. Between these years also the average capacity of railway-owned open wagons increased from 10.46 to 11.35 tons, covered wagons from 10.07 to 10.98 tons, and mineral wagons from 12.65 to 13.84 tons, an overall increase of about 8 per cent. He then repeats the old contention that the average load of general merchandise filling a 10-ton truck is 2½ tons. The Ministry of Transport statistics indicate, however, that the average wagon-load of general merchandise at starting point in 1938 was 2.99 tons and, with the heavier wartime traffics now passing, it is known to be substantially higher at present. As an example of practice differing from precept, however, it is of interest that although the average capacity of merchandise wagons increased by 8 per cent. between 1928 and 1938, the average starting-point load of general merchandise actually declined by about 3 per cent. In other words, larger wagons carried slightly smaller loads.

"Railway Economist" then points to the enormous waste of shunting and light mileage caused by the necessity for returning 10-ton wagons to the collieries but fails to mention that much of this work arises directly from the private ownership of coal and mineral wagons, the number of which is almost the same as the number of railway-owned wagons. Generally, the railway companies are not under any statutory obligation to supply wagons for coal-class traffic, although they did so pre-war in certain areas. As the colliery companies are mainly responsible for providing their own wagons, any failure to adopt a 20-ton or 40-ton standard obviously does not lie with the railway companies. In fact, the G.W.R. has been endeavouring for nearly 20 years to popularise the 20-ton wagon for the conveyance of shipment coal. In 1923 this company acquired 1,000 high-capacity wagons for loan to colliery companies on simple hire terms, expended very large sums in adapting coal hoists at the docks to enable 20-ton wagons to be dealt with, and offered a 5 per cent. rebate from the railway conveyance charges and a reduction of 1d. per ton from the shipping charges on coal carried in such wagons. The experiment was only a limited success, however, and a number of the wagons had to be used for other traffics. Under the provisions of the Development (Loan Guarantees & Grants) Act, 1929, the Great Western Railway subsequently arranged, in conjunction with the Government, for the construction of 5,000 20-ton wagons to be available for hire to colliery owners with an option to purchase at a nominal figure at the end of the hire period. These wagons were all taken up, but, as was stated in the report of the Royal Com-

mission on Transport in 1931, the use of similar high-capacity wagons in the inland trade is being delayed because alterations estimated to cost some millions of pounds would be necessary at terminals and private sidings.

"Railway Economist" is correct in his argument that the use of high-capacity wagons saves siding space, engine power, and so forth, but he omits any reference to one of the most vital points in connection with coal traffic, namely, that of the time occupied in discharging operations at destination. Figures compiled by the Standing Committee on Mineral Transport in 1929 showed that, on the average, coal wagons were detained at the destination by consignees for slightly over 3 days. If this was the case with 10- or 12-ton wagons, what turn-round could be expected with a 20-ton or larger wagon? The advantages to be gained from the use of high-capacity wagons can be obtained only when it is possible to operate them in train loads and secure a quick turn-round. On this point the standing committee remarked that, "apart from the cost of reconstructing terminals, the small consignee prefers the small truck. In many cases his trade is such that he would have to take a large wagon partially filled, or would hold up for a very long time a large wagon sent with a full load." Finally, if the railways are so hopelessly antiquated as "Railway Economist" suggests, perhaps he will explain how they are managing to deal satisfactorily with the heaviest tonnage they have ever carried, particularly when regard is had to blackout conditions which reduce operating efficiency materially.

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A Signalling Paper at the Civils

THE paper on signalling presented on November 17, 1942, to the Institution of Civil Engineers by Mr. A. E. Tattersall, Signal & Telegraph Engineer, Southern Area, L.N.E.R., brings the proceedings of that body up to date on this important subject. It is interesting to note that much of the most reliable information on the early developments in signalling is to be found in the papers read before the Civils years ago by Rapier, Preece, and Thompson, which were followed by lengthy discussions, when the views of those who had played a principal part in practically all branches of signalling were expressed in a way which makes instructive reading today. In later years, too, other engineers offered authoritative papers to the institution and occasionally shorter contributions were obtained dealing with some special aspect of the subject, such as signalling on electric railways. Signalling in India, for example, was very fully dealt with on one occasion, and the complete collection of papers and discussions forms a valuable asset to the signal engineer's library. Since the late Mr. William Willox dealt with the power signalling on the Metropolitan Railway in 1922, there has not been, we believe, any paper read before the institution touching really modern trends in signalling, except those read by Mr. Tattersall himself to the Yorkshire Association of the institution some twelve years ago. Even in that space of time there have been noteworthy developments, with some of which he has been particularly associated, and it is fitting that the Railway Engineering Division of the institution now should have from him a more extended account of the state of progress to which signal engineering has attained.

In an editorial in our issue for September 18, 1942, at page 267 reference was made to the way in which the advancement in physical science and manufacturing processes, frequently in other departments of engineering, had re-acted on the thoughts and aims of the signal engineer and opened up possibilities of further fruitful endeavour. Sometimes they put within his grasp the realisation of an ideal long clearly seen but for various reasons impracticable of attainment, at other times they pointed the way to new lines of action and changed the picture in marked degree. The removal of the distinction, long of necessity preserved, between signal aspects by day and night, and the substitution of one system applicable at all hours, now constantly being extended in all parts of the world, has been achieved by the efforts of those producing lamps and lenses, and rests to some degree on the growing extent to which electrical power is being made readily available. This is, of course, only another manifestation of the essential unity of science and the co-ordination which is the natural result of true scientific labour. Its effect has, however, become increasingly noticeable in the field of signalling during recent years, with the growing utilisation of electrical devices of less simple form than formerly sufficed. It has been also in part the consequence of the adoption of a broader conception of signalling and the lessened sense of difference between what used to be called the mechanical and electrical divisions of the art, itself come to be rightly considered as a unified whole, to be directed to a common purpose. It is not surprising that there are many differences of opinion on the merits of the types of apparatus and methods of working mentioned in the paper. Railway working is a complex thing and a great many practical considerations, imposed by traffic require-

ments, by the limitations arising from the staff obtainable for operation and maintenance, and the necessity of allowing for the influence of local circumstances, all have to be weighed in forming a judgment. Some engineers or traffic officers feel the importance of certain aspects of these problems, which impress others with less weight and this greatly influences the partiality felt for the precise form of apparatus to be adopted. Contradictory views are heard as to what might seem to be relatively simple questions frequently because there is a particular feature in them that influences the persons concerned strongly in one direction or the other. To others, again, these very matters may appear, although scientifically interesting, of no great importance relatively to the number of other elements that go to serve in the running of a railway. Signal engineering, taken even in its widest conception is but an element in railway engineering and operation, though a vitally important and today highly specialised one, and its problems have to be looked at with that fact in mind.

Much of the equipment to which the paper called attention is of such a nature as to deserve several, so that the author could give only a general statement on the present position and his convictions respecting the advantages or otherwise of this or that practice. These he has never failed to make known and to put into effect, as several installations bear witness. Were it not for the war some very large relay or circuit interlocking signal boxes, including one at a large London terminus, would presumably also have been in service, and much other work embodying ideas more particularly favoured by Mr. Tattersall would have been completed. Once a panel installation is in use at such a terminus a direct detailed comparison with the lever frame power system under onerous working conditions will eventually be possible, and should prove most instructive. It is not to be expected that all will share the views expressed in the paper on the advisability of bringing very large areas under the control of one signal box. The centralised traffic control met with on American lines works under very different traffic conditions, but even there there must be a limit to the amount of work to which a single signalman can give attention. Here again, however, experience must ultimately be our guide. This applies also to the technical problems involved in the use of the various forms of track circuit, the attempts to produce a wheel-counting or other substitute for them, the respective advantages of the several methods of operating outlying points, approach lighting, automatic train control, or cab signal devices. No doubt, if technical considerations were all that mattered we could instal a theoretically perfect system covering every conceivable contingency, but much of it would be a form of over-insurance against very remote risks, whilst its upkeep would necessarily be very costly.

There is one point in the paper with which all will agree and that is the emphasis laid on the importance of having adequate training of maintenance staffs, something which its author has himself done a great deal to further. One or two accidents of recent years have forcibly demonstrated how much depends on the care and intelligence with which maintenance work is done and the imperative necessity of ensuring that those entrusted with it are fitted for the charge. Relay interlocking and present day telecommunication systems demand much more knowledge than sufficed in the times of the mechanical-lever frame and the single-needle instrument. The fact indeed has for some time been recognised by many and much educational work been undertaken in various centres. It is to be hoped that this will become more and more extended when brighter days return. Signal engineers will feel indebted to Mr. Tattersall for having brought before the Civil Engineers a paper which cannot fail to have shown them how great an amount of thought has been directed to the perfecting of signalling apparatus and how creditable are the results that have been achieved by it.

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Welding versus Riveting, Bolting, and Casting

THE question as to why welding should not be applied more frequently is often asked nowadays. Welding has developed on a large scale during the last few years, and many progressive works managers and engineers have no doubt about the advantages offered by the process. Among the direct advantages, are simpler design, economy of labour, and saving in weight of metal. It is obvious that indirect advantages are of great importance also; for example, saving in weight means that less power is needed for transport, smaller dimensions are required for foundations, and handling is made simpler. Welding also means an avoidance of delay where castings are to be replaced. There is no need for new models and templates; either the casting can be redesigned as a welded job made from steel plates, sections, tubes, and so on; or, sometimes, the damaged casting can be made good by expert welding. It may appear strange, therefore, that the introduction of welding processes on a universal scale still meets with difficulties. One of the reasons is purely psychological. For many years riveted joints and

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castings have been considered fully efficient, and there is a kind of natural inertia which prevents the adoption of modern methods by those who prefer to stick to old-established ones without taking risks. Another explanation of delay in welding developments is financial. Old-established workshops have a good deal of money invested in their equipment for handling, machining, and drilling steel parts in the course of workshop processes; and, if welding were substituted for these methods, many of these machines would have to be discarded, and new equipment provided. This argument, of course, does not apply to the many industrial works which newly are being organised, and which, no doubt, would derive full advantage by adopting the most up-to-date methods in manufacturing their products.

Some of the arguments can be disposed of easily by those who have had many years' experience with arc-welding, gas-welding, resistance-welding, and thermit-welding; welded joints are certainly not less reliable than any type of joint produced by older methods. On the contrary, if welding had been established first and riveting introduced as a later development, it is doubtful whether it would have been accepted as a manufacturing method able to compete with the former. So long as better methods are not available, the welded joint will represent the ideal type of connection between two or more parts of ferrous or non-ferrous metal. Great risks had to be taken in applying welding to heavily-stressed structures such as locomotive boilers, railway-carriage underframes, and railway bridges, all of which are exposed to rather critical types of loading, including impact, vibration, and fatigue, and yet there have been scarcely any failures; those which have been experienced only point the way to further improvement, either of welding methods, of types of electrodes, or of properties of steel. It may be said that welding has come to stay; its advantages again have been confirmed in its widest applications in the production of munitions, tanks, warships, and aeroplanes.

♦♦♦♦

Buenos Ayres & Pacific Railway

IN the year to June 30, 1942, the increase of £63,018 or 0·96 per cent. in gross receipts was entirely offset by the advance of £207,901, or 4·02 per cent., in working expenses, which was due almost entirely to the war effect on cost of fuel, materials, and freights.

Exchange differences and provision for depreciation of currency net floating assets reduced the balance of net receipts to £613,674, and the amount available for debenture interest, etc., was £773,979. Interest on the first and second debenture stocks of the company and of the Argentine Great Western Railway Company, and on the first debenture stock of the Villa Maria & Rufino Railway Company, amounting altogether to £373,315, was paid on the due dates, and the payments of arrears on the 4½ per cent. debenture stock of the company have now been brought up to July 1, 1937, and on the 5 per cent. debenture stock of the Argentine Great Western Company to October 1, 1937. For the year under review the debit balance was £1,097,111, making the total balance at debit of net revenue account £9,549,295.

Total passenger receipts showed an increase of £61,644, or 7·10 per cent., and the first class receipts of £413,175, which were £21,352 higher than in the previous year, represented 47·05 per cent. of all passenger receipts exclusive of Government traffic. Goods receipts as a whole were 1·99 per cent. lower, notwithstanding a slightly heavier tonnage, but livestock receipts improved by £100,064 or 28·69 per cent. The valuable wine traffic was maintained, and general goods brought in £38,026, or 10·61 per cent., more. Apart from wheat there was an improvement in cereals traffic. The large shrinkage in imports has given rise to a notable expansion in local manufacturing industry, which is reflected in the traffics. Some operating figures follow:—

	1940-41	1941-42
Passengers	14,601,457	15,220,731
Tons of goods (metric)	3,407,677	3,436,921
Train-miles	9,020,208	9,067,373
Net profit per train-mile	3s. 2d.	2s. 10d.
Operating ratio, per cent.	78·38	80·76
Passenger receipts	£868,592	£930,236
Goods receipts	4,726,258	4,632,293
Gross receipts	6,594,100	6,657,118
Working expenses	5,168,456	5,376,357
Net receipts	1,425,644	1,280,761

Trials were made with wood-burning locomotives on the majority of the sections of the line in order to establish consumption rates, intermediate fuelling points required, as also the necessary adjustments in train timings and loads. As a result, the use of wood has gradually been extended, beginning with branch lines and secondary services until, on May 1 this year, at the change to the winter timetable, the consumption of coal was restricted to the Buenos Aires local section.

Publications Received

Locomotive Management: Cleaning—Driving—Maintenance. 8th Edition.

By the late Jas. T. Hodgson and the late Chas. S. Lake. London: St. Margaret's Technical Press Limited, 33, Tothill Street, S.W.1. 8½ in. × 5½ in. 492 pp. + xvi pp. Profusely illustrated. Price 8s. net.—For nearly 35 years "Locomotive Management" has been recognised in railway circles as the standard text book for helping cleaners and firemen to the knowledge that they must possess in order to qualify for promotion. It has, moreover, come to be regarded as the most handy and complete book of reference for fully-qualified men seeking information outside their immediate experiences. The present edition has been necessitated by the very rapid exhaustion of stocks of the 7th edition, for which the demand has been particularly heavy owing to the great number of railwaymen who have had to qualify before their time in order to fill gaps left by more experienced men taking up war work.

The opportunity has been taken to make a few minor changes in the text and to include illustrations representative of the most recent locomotive practice. It has not, however, been found possible in present circumstances to add substantially to the size of the book. In our review of the 7th edition, published on page 20 of our issue for January 20, 1939, it was suggested that more space might be devoted to an explanation of fundamental principles, but, short of removing useful existing material, this, obviously, could not be done. It is suggested that, after the war, the educative value of this already invaluable book could be enhanced by dwelling at greater length on the points

mentioned in our review of 1939 but, in the meantime, we feel confident that it will meet the needs of all locomotive men preparing to face greater responsibilities here and now.

The time for reading must be cut to a minimum and the probability is that the adherence once again to bare essentials in "Locomotive Management" will be appreciated rather than otherwise. Certainly it would add nothing to the value of this book at the present time to give data on the effects of streamlining, and it is doubtful whether the hard-pressed fireman or driver would at the moment want to build up for himself a better theoretical background by studying the basic principles of combustion, feedwater treatment, and steam behaviour in cylinders. The time for this may come later when the 9th edition is being prepared. The value of any instruction book lies very largely in the illustrations and diagrams and these, despite wartime difficulties with paper, blocks, and printing, continue to reveal in the clearest possible manner the inner construction and working of locomotives and locomotive accessories. The chapters on Clearing House Rules for Signals and other matters affecting train working are not the least valuable in the book, for they emphasise again that, while responsible for the efficient working of the locomotive as a piece of machinery, the men on the footplate have the further and still greater responsibility of ensuring safe conduct for passengers and merchandise over the railway at all times.

STUART MAILL.

Tin-Bearing Metals. By W. T. Pell-Walpole, J. C. Prytherch, and Bruce Chalmers. Paper reprinted from the *Journal of the Institute of Metals*. Middlesex:

Tin Research Institute, Fraser Road, Greenford; U.S.A.: Battelle Memorial Institute, 505, King Avenue, Columbus, Ohio. 8½ in. × 5½ in. Paper covers. Gratis.—The Tin Research Institute's publication No. 111 records a comprehensive study of the factors governing the adhesion of tin-base bearing alloys to various backing metals, including steel, bronze, copper, brass, and cast iron. The results of this investigation were first reported in the *Journal of the Institute of Metals*, Vol. 68, 1942, in a paper by W. T. Pell-Walpole, B.Sc., Ph.D., J. C. Prytherch, B.Sc., and B. Chalmers, D.Sc., Ph.D. The conditions for obtaining efficient bonds are considered, and the many factors affecting these conditions in manufacturing operations are examined. A large number of tests are described which indicate the most suitable methods of preparing and tinning the bearing shell, and of casting and cooling the lining. The results of thousands of individual tests show the effects of variations in alloy composition, mould design, temperature of metal and mould, and rate and direction of cooling, in relation to both hand pouring and die-casting and also to centrifugal methods of production. The part played by shrinkage cavities at or near the bond is also examined, and methods of operation are suggested by which this trouble may be avoided.

Machine Tool Control.—A copy of Machine Tool Control Leaflet No. 7, recently issued by the Ministry of Supply, has reached us. It is entitled "The Essentials of Good Fixture Design" and contains information of interest and value to the engineering industry. In it advice is given respecting the design and use of fixtures for machining purposes and several sketches illustrating the points made are included.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Mixed-Gauge Trains

60A, Green Lane, Northwood,
Middlesex. Nov. 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The quotation from the G.W.R. service timetables of November, 1874, "The gauge of the trains on the Windsor branch is uncertain," which you gave in THE RAILWAY GAZETTE of November 27, p. 516, is explained by a statement in MacDermot's History of that line (Vol. II, p. 325): "During the 'sixties and 'seventies the Windsor branch was remarkable and, it seems, unique in having some mixed-gauge passenger trains, broad and narrow vehicles being joined by means of a 'dummy,' similar in buffers and couplings to the 'match-trucks' used for the same purpose on goods trains in West Cornwall."

In "Earnest Struggles or . . . the life of a stationmaster . . ." the author, who was stationmaster at Windsor, states that "the dummy" was the regular railway term on the Windsor branch for this vehicle which was frequently used to fit in between narrow-gauge coaches and a broad-gauge engine or vice versa, thus enabling the mixed gauge train to run.

Yours faithfully,
REGINALD B. FELLOWS

Times of Duplicate Trains

1, St. Johns Park, S.E.3
Nov. 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have hesitated to add a word in support of "Voyageur's" letter in your issue of Nov. 13, as I should be sorry to be thought guilty of "pernickety and meticulous" criticism of wartime train arrangements, but—with all respect—some of your editorial comment seems scarcely germane to "Voyageur's" very reasonable suggestion. Surely the way to "equate the traffic," and to make sure that the best use is made of whatever trains can be run, is to give the public the fullest possible information? The railways are amply covered in the event of an advertised duplicate proving unnecessary at the last moment (a very unlikely contingency), and although the proportion of civilian traffic to the total carryings may be small, it is almost entirely made up of people whose time is very valuable nowadays. You will recollect that the Southern Railway has recently advertised duplicates in its West of England service which run close to the "ordinary" times, and I am not aware that that company's difficulties have been increased by so doing, but I have particularly in mind a case of a "Fridays and Saturdays only" duplicate in the North of England, which regularly makes its 130 miles journey from 45 to 60 minutes in advance of the train it should "relieve." It is not advertised and, consequently, is lightly loaded. The people who are "fortunate in being permitted to travel at all" have inevitably to suffer from alterations which may have to be hurriedly made—the L.N.E.R., for example, altered the 2.30 Edinburgh and Newcastle service to 1.40 at a mid-September date, and severed the connections from Perth and Aberdeen—but why may they not be told of whatever services are, generally, run?

Yours faithfully,
R. E. CHARLEWOOD

Some L.N.W.R. Services South of the Thames

Bordyke, Burgess Hill,
Sussex. Nov. 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The L.N.W.R.'s first transpentine train service in 1863 was not to Waterloo, but to the Crystal Palace over the West London Extension Railway to Clapham Junction (L.B. & S.C. side) and thence on that railway to the low level station at the Palace. At first the trains ran only on Mondays and Saturdays, but later a daily service was run, and continued for many years; in May, 1875, it was between Willesden and Croydon and so continued for many years, Croydon Central being the terminus until that station was closed, after which New Croydon was the southern limit for the trains.

The L.N.W.R. service to London Bridge, S.E.R., mentioned by Mr. P. E. Davis in his letter (p. 515, THE RAILWAY GAZETTE of November 27) commenced in July, 1865, and was the first public train service connecting the L.S.W.R. and S.E.R. at Waterloo, as well as the first L.N.W.R. service to Waterloo terminus. Ten trains each way were run on week-

days; the journey between Euston and London Bridge occupied about an hour. The S.E. line between London Bridge and Charing Cross was opened in January, 1864, with an intermediate station in Blackfriars Road. For some time the connection between the L.S.W. and S.E. Railways at Waterloo was of a makeshift character, and, previous to the L.N.W. service to London Bridge, had only been used for Royal Specials between Windsor and the South Coast. The S.E.R., as owner of the Charing Cross Railway, was under a statutory obligation to construct a proper junction at Waterloo, which was carried out later. The Waterloo Junction Station of the S.E.R. was opened on January 1, 1869. The description states that the platforms were about 3 ft. high "or nearly the height of the floors of the carriages"—evidently quite unusual at that time. The Blackfriars Road Station was closed upon the Waterloo Junction Station being brought into use.

After the completion of the spur giving a direct run through from the west to Cannon St., the L.N.W. service was transferred in February, 1867, from London Bridge to Cannon Street, but the service was withdrawn at the end of that year.

A service of L.N.W. trains between Willesden and Waterloo terminus was commenced on January 1, 1875. These trains conveyed horse boxes and other vehicles to the L.S.W.R. and also for transfer to the S.E.R. and vice versa. At holiday times the shunting of these vehicles at Waterloo caused delay and inconvenience to the heavy traffic. As a result, following these delays, the L.S.W.R. always agitated for the withdrawal of the service, to which the L.N.W.R. assented in January, 1893. Meanwhile the number of trains had been reduced from 8 in 1875 to 6 a day.

It is interesting to note, concerning "foreign trains" at Cannon St., that from September 1, 1867, the L.B. & S.C.R. crack Brighton expresses—8.45 and 9.45 a.m.—up to London Bridge, were extended over the S.E.R. to Cannon Street, whilst the balancing 4 and 5 p.m. expresses to Brighton started from the City terminus. Five minutes were added to the original journey time of 75 minutes in each direction for the extension to Cannon Street. The trains continued to call at Croydon and London Bridge in both directions.

Extra fares of 6d. first class, and 4d. second class were charged for the additional journey to, or from Cannon St., but the return fares were less than the sum of two single journey tickets.

Yours faithfully,
G. A. SEKON

Willesden and Willesden Junction

The Railway Club,
57, Fetter Lane, E.C.4. Nov. 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. D. S. Barrie, quoted in your issue of November 27 (page 515) is in error as regards the position of Willesden Station in the early '60s. The trains called at Willesden, $\frac{1}{2}$ mile to the north of the present Willesden Junction; that Willesden was closed on the opening (on September 1, 1866) of Willesden Junction. The station just south of Willesden Junction was the old West London Junction, and it was used only from about June to November, 1844.

Yours faithfully,
HARRY W. BARDSLEY

[G. P. Neele, in his "Railway Reminiscences," says: "Bradshaw's Guide for May, 1844, shows a new station open on the London & North Western Railway called Willesden. Prior to this there was nothing between London and Harrow. This Willesden Station (six miles from London), and Sudbury, were opened on the same day, together with those at Pinner and Bushey. Willesden was a small roadside station on Acton Lane, which the passengers of that day believed to be constructed for the sole accommodation of the Manager, Captain Huish, who lived at a short distance from it. In July, 1844, a new intermediate station, called West London Junction, $\frac{1}{2}$ miles from Euston, is shown." We may add that the West London Railway, passenger service to Willesden (London & Birmingham Junction Station) lasted only from June 10 to November 30, 1844.—Ed. R.G.]

PLYMOUTH TRANSPORT CO-ORDINATION.—Sir Alfred Robinson, the South-Western Regional Commissioner, who held an inquiry at Plymouth on November 12 and 13 into complaints made about changes in local bus facilities as a result of the recent co-ordination scheme between Plymouth Corporation and the Western National Omnibus Co. Ltd., has now issued his memorandum. Broadly, he accepts the value of the scheme introduced by the Plymouth Transport Joint Committee, and agrees that the fares charged are generally reasonable. The operators have suggested detail modifications to some routes and schedules, which the Commissioner has sanctioned.

The Scrap Heap

RUBBING IT IN

"Don't travel unless you must!" An old A.B.C. Railway Guide will make two square feet of wallboard for a war factory."—From "Business."

* * *

"NO LIGHT" PUNISHMENT

Fifty-nine persons have had their light supply cut off for three days at The Hague, as a punishment for bad black-out.—From "The Evening Standard."

* * *

A G.W.R. goods porter was sentenced to six months at Bath City Police Court recently. He stole an iron-bound box, which weighed 1 cwt. and was marked "Coin." When he got it home he found it contained 9,600 farthings.

* * *

CALL TO U.S.A. WOMEN

Women in railroading just mean more women power to help man power. The Army has its W.A.A.C.S., the Navy has its W.A.V.E.S.; so why shouldn't the railroad have its W.I.T.S. (women in transportation).—From the "Railway Age."

* * *

THE CHRISTMAS TREE MAY TRAVEL

Christmas trees are arriving by train in London. Holly and mistletoe, however, are debarred from railway journeys by the Ministry of War Transport Order stopping the carriage of cut flowers and decorative foliage. It would be a mistake to suppose that the Government has a preference for the Christmas tree or any desire to sabotage the Christmas kiss under the mistletoe in urban areas. The Christmas tree has merely been lucky, coming as an exception to the order under the Whitehall description of a "tree, shrub, or bush with persistent hard woody stem" and having a root attached but without soil or pot. So the tree, shrub, or bush aforesaid may be transported for Christmas decoration. Holly, better berried than for many years, must stay in the country or get a lift otherwise than on the railways.—From "The Manchester Guardian."



Nameplate of the latest Doncaster-built L.N.E.R. locomotive, the 1942nd engine to be constructed at Doncaster Works and built in 1942

THE "MYSTERY" OF SUPPLY (A nearly true story in rhyme)

The "unit" broke (t'was somewhat old).
The office bloke was 'phoned and told
To order up at once a piece
Meanwhile, of course, the work did cease.
The office bloke wired straight away;
"A Breakdown . . . Urgent . . . Send today,
Six inches four by two annealed."
Alas, this order was revealed:—
A permit must be first obtained
Before the piece could be entrained.
This caused us quite a nasty shock,
Because the piece was offered "stock."
To Steelbar House a letter went
To ask them could some forms be sent,
Whereon permission we might seek.
These came at last (this took one week),
Then, by return, all duplicated,
The full details were plainly stated.
Another week went by, and then,
Steelbar House wrote—(Our Reference
"Gen.")

"You don't state period when required"
"Right now" the answer quick was
wired;

Two further weeks had passed away,
Ere Steelbar House wrote back to say:
"Our Mr. Jones will call on you,
"To ascertain if, in our view,
"This want of yours is justified"
(They must have thought that we had
lied).

Ten days elapsed—then Jones called round
To view the job upon the ground;
To vet. the statements we had made;
To see they warranted first aid.

"For which Department do you work?"
He queried, with official smirk.

"I'll have to ask to see contracts,
"And then I'll marshal all the facts."
He filled his book with lots of figures,
(Our staff could hardly hold their sniggers)

"Ahem," said he, "I am afraid
"You'll have to ask the Board of Trade.
"Submit, as grounds for claiming grant
Repair and maintenance of plant,"

He left—and we began again,
Although it went against the grain,
To Tradeboard House we wrote a letter,
But never thought they'd go one better.

They wrote and asked us to relate
Percentage of our work for State,
And would we kindly specify,
Which was the parent Ministry?

On checking up t'was plain to see
Most of our work was M.A.P.
Although by now four months had passed
We thought we'd got the steel at last.

So you can judge our pained surprise
When on us called a Mr. Brize,
Forgive us if we seem to grouse,
But he'd been sent by Airboard House

To check upon the simple facts
(And chase right up the others tracks).
We told him all that we did know,
And wished him far, before he'd go.

He promised us that without fail
We'd get the licence by next mail.
This may be perished in the post,
Or else our Mr. Brize did boast,

It took three weeks, all but a day;
We got it on the first of May,
And sent it off at ten o'clock
To get that four by two from stock.

Alas, while all this game was on
The stock was sold, the piece was gone.
So back to Mr. Brize we went,
Our patience very nearly spent.

Please, could he help us in our plight?
He said he could—then said he might . . .
Hours of waiting ticked away,
Till, on a cold and frosty day,

A "Chaser" M.A.P. called in,
And asked us with a sickly grin
By extra spurt would it be poss.
(If only to oblige his boss),

To meet a very urgent call,
By pushing others to the wall?

In fact, it was a breakdown job,
(We held our breath and checked a sob)
"A bit of four by two annealed"
The red blood in our veins congealed—
Pink Elephants . . . Could we supply?
The very piece we longed to buy.

EPILOGUE

If, when at ease—perhaps mopping ale,
You ponder on this sorry tale,
Don't be too harsh, try to forgive;
The Ministerial bloke must live;
Stay at Hotels, ride in a car,
And yet he wants to win the war.
What's that you say? this need not be,
Sez you, Says I, you're telling me.

* * *

Exactly 25 years ago the G.W.R. was
beginning to equip some of its large fleet of
buses and vans with coal-gas containers.

* * *

A season-ticket holder on the Great
Eastern Railway, finding his train not
ready in consequence of the fireman not
keeping up steam, ordered a "special"
for which he was charged £39 15s., which
he paid and then brought an action to
recover, together with £10 for loss of time.
The case was tried in the Court of Ex-
chequer and Mr. Baron Martin said it was
nonsense for people when guilty of negli-
gence to say "Mind, I won't be responsible
for it." He was astonished that the com-
pany had not returned the money charged
for the special train. The jury gave a
verdict for the plaintiff for the amount
claimed.—Extract from "The Graphic," of
November 19, 1870.

* * *

U.S.A. GIFTS TO GREAT BRITAIN

Recently there appeared in some of the
fire-watchers' rooms in the Manchester
operating district neat little radio sets; the
big Manchester goods depots of Ardwick,
Deansgate, and Ducie Street received one
each, and one was also sent to Birkenhead,
on badly blitzed Merseyside. At once these
sets, gifts from the men and women of the
Baltimore & Ohio Railroad, became the
centre of an interested humming and
buzzing, and there were few whose hearts
did not experience a peculiar surge of
emotion as they read the message on the
little plate, and realised how railwaymen in
another continent were giving such prac-
tical proof of their understanding.—From
the "London & North Eastern Railway
Magazine."

* * *

LOCOMOTIVE COAL

As an engine driver on the L.N.E.R.
with over 30 years' experience as fireman
and driver I take exception to the recent
B.B.C. statement on the saving of coal on
the railways. We are never too old to learn.
but isn't it rather late in the day to be
taught something we have been doing for
years, that is, using coal to its best advan-
tage, for remember, the fire doesn't feed
itself, and it means work. A big saving
can be effected by the companies if repairs
are attended to before the engines leave
the sheds. Leaking fireboxes, blocked-up
tubes, glands and joints blowing, dampers
which won't shut down—all these waste
more fuel than a fireman could on any
journey.—Mr. Sydney Hadfield in a letter
to the "News Chronicle."

* * *

"RAILWAYS AS THEY RUN"

Scene: Film entitled "The Great
Impersonation."

Act I.—Orient liner arrives at Tilbury.

Act II.—Boat train speeds to London on
Southern Railway.

Act III.—Passengers from above are
seen leaving Euston Station.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Freight Traffic

The latest report of tons of revenue freight loaded at Canadian stations, which included estimates for the months of July and August last, indicates that railway tonnage is maintaining its record level. The August tonnage was estimated at 7,774,000 tons, which was only 70 tons more than the August, 1941, figure, but nevertheless, represented a new peak for the month. With grain loadings currently running at a low level, and with no indication of a prospective improvement, however, it does not appear likely that railway tonnage figures will be found to have reached the peaks set up in September, October, and November, 1928, when grain loadings were very heavy. In the first eight months of this year, 59,585,000 tons of freight have been loaded, a new record level, representing an increase of 5,086,000 tons over the corresponding period of last year and of 13,699,000 tons over the 1940 figure.

In comparison with the pre-war total of 32,648,000 tons loaded in the first eight months of 1939, the increase amounts to 26,937,000 tons, or 83 per cent. The fact that wagon-loadings show an increase of only 44 per cent. for the same period indicates that measurement by wagon-loadings has its limitations, and that the monthly data of tons of revenue freight loaded must be used in conjunction with wagon-loadings to prevent a misinterpretation of the weekly data. This is illustrated also by comparisons of the current year with those of 1928 and 1929. Railway tonnage shows an increase of 23 per cent. over the 1928 level and of 19 per cent. over 1929 level, despite the fact that wagon-loadings for the current year are slightly below the figures for 1928 and 1929. This may be said to be due to the fact that a wagonload does not represent a fixed quantity.

UNITED STATES

The Newest Ferry Steamers

The latest Pere Marquette ferry, the *City of Midland*, built at Manitowoc, Wisconsin, in 1941, is over 400 ft. long, carries 32 loaded freight wagons and 50 automobiles, and makes two double trips daily between Ludington and Manitowoc at 18 knots. Typical of the larger ferries are the P.M.R. *City of Flint* and *City of Saginaw*, on the Ludington-Milwaukee run, 369 ft. long, 57 ft. in the beam, of 18 ft. draught, and of 3,300 gross tonnage; and with turbo-electric power driving them at 18 knots. The rough conditions prevailing on the lake at certain seasons, and during the autumn in particular, have made it necessary to design these vessels on ocean-going lines, and they have also strengthened bows for icebreaking in wintertime; the risk may be realised from the fact that in October, 1929, the Grand Trunk ferry *Milwaukee*, with a full freight of loaded wagons and a crew of 54, foundered with all hands while crossing.

In a normal year the aggregate movement of eastbound freight across the lake amounts to over 1,600,000 tons, and west-bound to nearly 1,500,000 tons; the latter is mainly coal, accompanied by iron and steel products, salt, and perishables; east-bound the traffic consists chiefly of grain,

dairy products, lumber, and miscellaneous raw materials. In war conditions, of course, these tonnages are being exceeded greatly.

A New Route for Ore

It is estimated that the total amount of iron ore which will have passed through the locks at Sault Ste. Marie, Michigan, from Lake Superior to ports on Lake Michigan and Lake Erie, will amount to 84,000,000 tons by the time the formation of ice on the lakes necessitates the usual winter suspension of traffic; and, as this traffic is increasing constantly, consideration of alternative routes is urgently necessary to guard against the possibility of any blockage of the Soo canal and locks. The War Production Board therefore has sanctioned the construction of new docks and ore yards at Escanaba, on Lake Michigan, together with the dredging, if required, of new channels to Escanaba harbour, and track and bridge improvements on the railways to Escanaba from Superior, Wisconsin, at the western end of Lake Superior, and Ironwood, Michigan; the aim is to by-pass the Soo canal, and to make Escanaba capable of handling up to 60,000,000 tons of ore in a season. Furthermore, endeavours are being made, by the use of more powerful icebreaking vessels, to keep certain water routes for ore open throughout the winter.

1,000 Miles of Line for the W.P.B.

During the six months from February to July last the War Production Board requisitioned roughly 1,000 miles of track materials from abandoned and non-essential lines, and, including sidings, spurs, and miscellaneous track-side equipment, it is calculated that the total of rails, switches and crossings, fastenings, and other items taken over, amounts to fully 200,000 tons. Rails and switch and crossing material which is in a good and serviceable condition is relaid as received; when the condition of the rails is not so good, they are dispatched to rolling mills for re-rolling; and the material which is past further use goes to the war effort as scrap. The usable material is devoted by the W.P.B. to the laying of additional trackage around docks, arsenals, and ammunition depots, and to new camp sites, some of which have required branches of considerable length to connect them with the nearest adjacent railways. The Pennsylvania Railroad alone has released nearly 60,000 tons of rail, of which half was in sufficiently serviceable condition to provide 200 miles of new track for war purposes.

Dynamiting the Denver Zephyr

Two months after the attempt to sabotage the Panama Limited streamliner of the Illinois Central Railroad comes a dastardly attempt to derail the Denver Zephyr of the Chicago, Burlington & Quincy Railroad, one of the fastest trains in the United States. At 12.5 a.m. on September 14, the Denver Zephyr was travelling at 80 m.p.h. near Nodaway, Indiana (421 miles west of Chicago), when charges of dynamite inserted in the track were exploded under it. Bundles of five or six sticks of dynamite had been set in the ballast at twelve different points within a distance of about 600 ft., wired together in such a way that they could be detonated simultaneously. The two power coaches and the two head-end coaches of the train had passed over the affected length when the explosion took

place, but the remaining ten coaches suffered damage from blast to underframe equipment, and from broken glass; fortunately, however, the damage both to track and rolling stock was not serious, and no coaches were derailed. After a delay of 5 hr., the streamliner proceeded intact, under its own power, over the ensuing 75 miles to Omaha, where the passengers were transferred to another train. The attempt to derail the Denver Zephyr is connected with a theft, three nights previously, from the State quarry at Corning, 9 miles from Nodaway, where three men stole 137 sticks of dynamite, wire, and a plunger-type detonator; the wire and the detonator were discovered on the site after the explosion.

CHILE

Railway Construction

During the year 1941, 157 km. (97 miles) were completed in Chilean territory of road-bed for the international railway line planned to connect Antofagasta, Chile, with Salta, Argentina. (Some details concerning this railway were given in THE RAILWAY GAZETTE of September 11, and in various preceding issues.) The length of track laid along this route in Chilean territory during 1941 totalled 93 km. (58 miles). Construction is said to have been hampered by shortage of materials.

Of the line under construction, between Corte Alto and Maullin, 76 km. (47 miles) of the total distance of 108 km. (67 miles), have been completed, but it is stated that operation has not been commenced due to lack of rolling stock.

ITALY

Undersea Tunnel Scheme

A scheme is said to be under consideration for connecting the railway systems of the Italian mainland with Sicily, by means of a tunnel. One of the obstacles seems to be the wide discrepancy of view as to the geological nature of the submarine soil to be pierced. The drilling of an experimental tunnel is suggested; and, if it should appear that a railway tunnel would be an unworkable proposition, the experimental tunnel would be completed, nevertheless, to allow of the connection of the electricity-distribution systems of the mainland and of Sicily.

Alternative schemes have been evolved in this connection, involving either the laying of the cables in the railway tunnel, or effecting the connection by way of a suspension wire crossing the strait between Punta Pezzo, on the mainland, and Torre Faro, on Cape Faro, in Sicily, a distance of about 11,000 ft., in a single span. Another project is for a cable along the bottom of the sea; this would have a length of about six miles, and would consist of three separate unipolar cables; one complete cable would be stored on shore for emergency use. The weight of the cable would be 26½ metric tons a km. The majority of experts tends to prefer the suspension-wire connection, in case neither the railway nor the smaller tunnel should be found practicable. Connection between the mainland and Sicily at present is maintained by ferry or steamer between Villa San Giovanni, 14 km. (9 miles) to the north of Reggio Calabria, and Messina; the journey, either by ferry or by steamer, lasts 45 min. Departures from Villa San Giovanni, in connection with trains from Naples and Rome, or from Taranto, are at 7.30, 8 and 10.15 a.m., and at 3 and 5 p.m.; in the reverse direction departures from Messina are at 6.55 and 9.10 a.m., and at 2.4 and 6.30 p.m.

Electric Traction Section

Electrification in Sweden

TWO noteworthy developments of the Swedish railways since the outbreak of war have been the further extensions of electric traction, and the acquisition by the State of many private lines. Recently, the results of war conditions have retarded the former, but not the latter. The 1942-43 Budget of the Swedish State Railways allocated Kronor 14,000,000 for the second stage of the electrification programme now being carried out, as compared with Kronor 19,000,000 originally intended. This second stage comprises mainly the electrification of the lines Sundsvall—Ånge (59 miles), Gävle—Ockelbo (24 miles), Hälsingborg—Hässelholm (48 miles), and Hälsingborg—Eslöv (31 miles). Work on the two first-named has now been completed. The two last-named (in Skåne) have yet to be converted.

Reuters reports that trial trains are being operated over the recently-electrified State Railway line between Sundsvall and Ånge, in Northern Sweden, a distance of 60 miles. It is stated that regular electric services will begin as soon as certain supplementary work on the terminus at Sundsvall is completed.

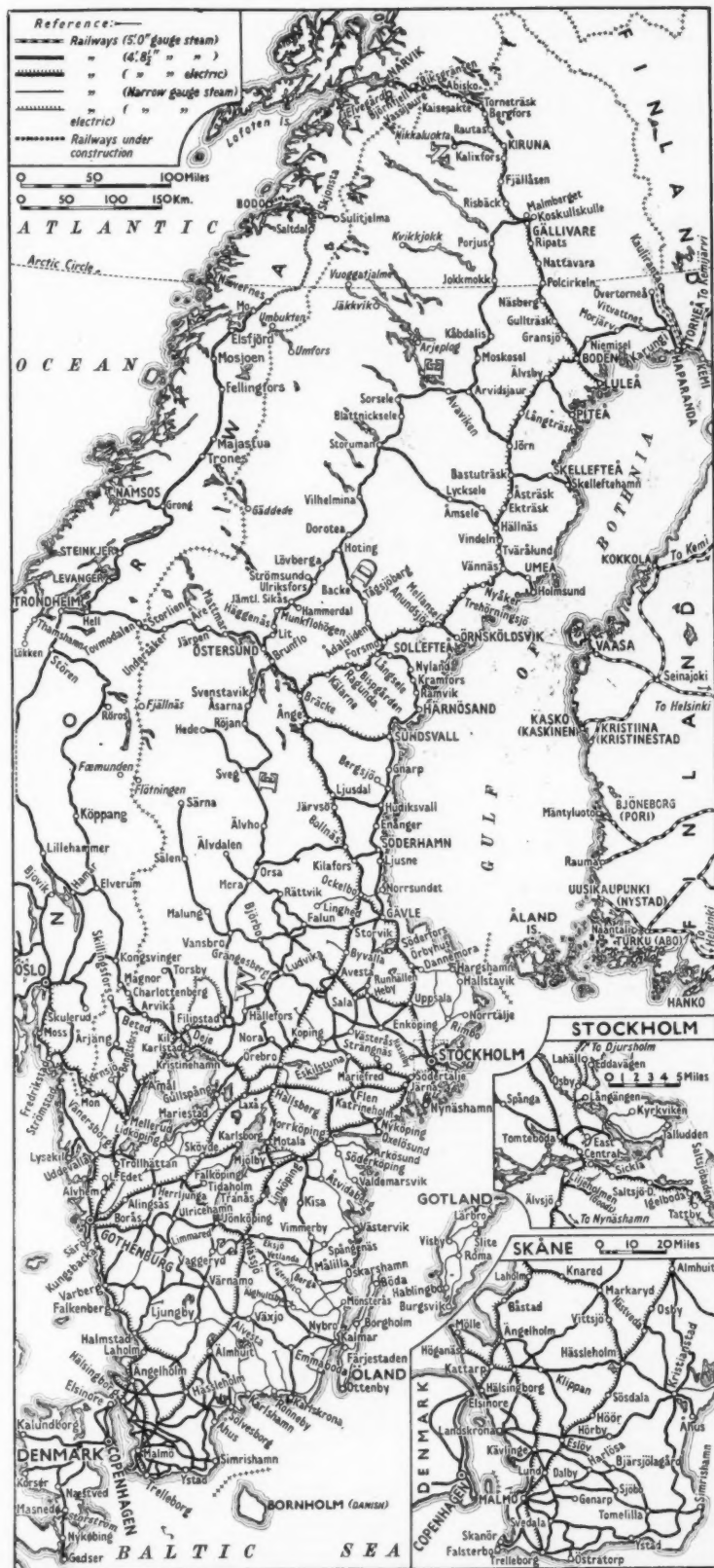
The Budget reduction means that some of the work will be retarded, but still it is expected to be completed by the second half of 1943, or only six months later than originally planned. In view of the shortage of copper, the Swedish Industrial Commission declined to allot the quantities of copper required for the electrification (1,460 metric tons) but the State Railways are able to provide this from their own stocks.

At the beginning of this year the Swedish State Railways had 488 electric locomotives, and 15 electric motor cars. In the 1942-43 Budget Kronor 13,000,000 was scheduled for 23 new electric locomotives, of which Kronor 6,000,000 was being allotted during the current financial year. The first of three new type F electric locomotives for the Swedish State Railways was illustrated and described in our June 26 issue, page 699. The budget also included Kronor 1,500,000 for new electric railcars, Kronor 7,600,000 for about 100 passenger vehicles and 1,450 wagons, and Kronor 10,000,000 for doubling main-line sections.

The electrification of the last link of the northern main line (Stockholm—Boden) of the State Railway, the 89-mile section between Jörn and Boden, enabled through working of electric trains between Stockholm and Boden (622 miles) to begin on March 1.

The route length of the electrified system of the Swedish State Railways is now 4,242 km. (2,636 miles), and the electric sections of the private systems bring the route length of all the electrified Swedish railways up to 4,836 km. (3,005 miles). Prominent among the private lines are the Bergslagen Railways, on which electric traction was adopted between Gothenburg and Amål on May 15, 1939; between Amål and Kil on November 7, 1940; and between Kil and Daglösen on November 7, 1941. The length of the electrified through line from Trelleborg in the south to Riksgräns Station (the last station on the Lapland railway close to the Swedish-Norwegian frontier) is 2,171 km. (1,349 miles).

We are indebted to Herr R. Lundqvist, a Director of the Swedish State Railways, for revising our map.



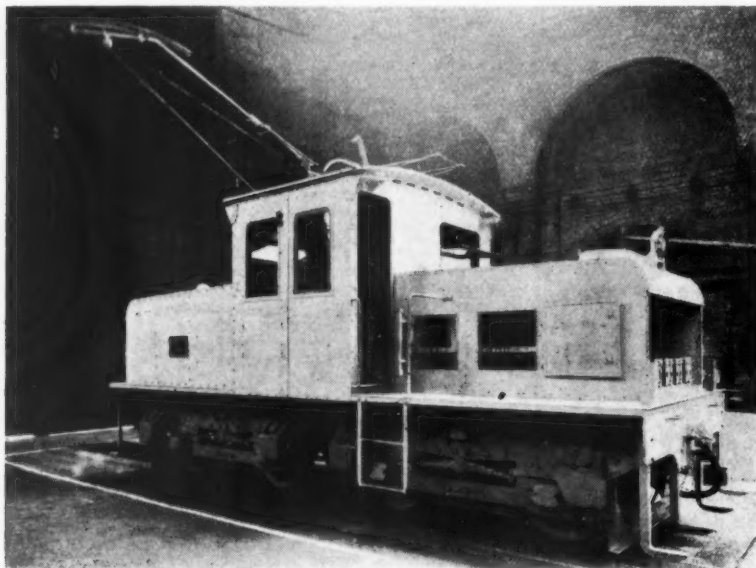
Revised map of the railways of Sweden, showing the lines already open to electric traction

Electric Locomotives for Mining Service in Australia

Recent products of the Metropolitan-Vickers Electrical Co. Ltd.

THE Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, recently has supplied the electrical equipment for two electric locomotives for the Broken Hill Proprietary

Co. Ltd., in Australia. The mechanical portion has been manufactured in the Commonwealth, because of present difficulties. Four other similar locomotives previously had been supplied complete



and used at the Whyalla mines, but the present two are for another location.

The accompanying illustration shows that the form of the locomotives consists of a central cab with end portions containing resistances and control equipment. Power is derived from an overhead contact wire at 600 volts d.c. and there are 4 axle-hung motors, driving through single reduction gearing with single helical teeth, permanently connected two in series on each bogie, so that each motor operates on 300 volts; at this pressure its one-hour rating is 26½ h.p., or 105 h.p. for the locomotive. Tractive effort is 7,900 lb. at 5 m.p.h. at that rating, but a momentary starting effort of 16,000 lb. can be obtained. The two bogie groups are switched in series-parallel with 5 and 4 notches respectively, including the two economical running speeds, a small master controller, with dead-man's handle, actuating through a low voltage circuit, taken by potentiometer across the 600-volt supply, the electro-pneumatic switch gear. The total weight of the locomotive is 22 tons in working order and the track gauge is 3 ft. 6 in. We are indebted to the makers for the accompanying illustration.

One of six Metrovick 22-ton locomotives supplied to Broken Hill Proprietary Co. Ltd., Australia

The Furka-Oberalp Electrification

Completion of electrification of Furka-Oberalp route

THE Visp—Zermatt, Furka—Oberalp, Schöllenen, and Rhaetian metre-gauge lines now are operated on the same type of power. On July 1, 1942, electric working was brought into use throughout the whole 97 km. (60½ miles) route of the Furka—Oberalp line in Switzerland, from Brigue, at the northern end of the Simplon Tunnel, through Gletsch, to Disentis, connecting the upper end of the Canton of Valais with the upper Rhine valley. About 32 km. (20 miles) of this distance are fitted with rack rails. The upper Alpine section has been made free to be worked, if necessary, throughout the winter and with this object numerous snow sheds and other protective works have been built, and in some places the line has been deviated from the original route. The opportunity was taken of altering the power supply of the Schöllenen line, which runs from Göschenen to Andermatt, to conform to the system used on the Visp—Zermatt, the Furka—Oberalp (these now are connected through between Visp and Brigue, parallel to the ordinary main line), and the Rhaetian, all four now working on 11 kV a.c. single-phase current, 16½ cycles. An interesting peculiarity is that on part of the Furka pass section, where winter services may not be considered necessary, the overhead line and supporting standards can be dismantled readily and removed; and so may not be left exposed to deterioration in bad weather.

The adoption of a common system of traction allows of a certain degree of common user of rolling stock. The latest

stock for the Furka line comprises some 4-motor 8-wheel 1,400 h.p. locomotives for heavy-goods and passenger service, some 8-wheel 2-motor motor coaches, with goods compartments, of 650 h.p. each, and some 4-wheel 650 h.p. locomotives able to run on the Schöllenen line if required. Maximum speed on the adhesion sections is now 60 km.p.h. (37½ m.p.h.), and half that on the rack sections. A reduction in journey time from 4 hr. 45 min. to 3 hr. 15 min. between Brigue and Disentis has been effected. On the Schöllenen line the journey time has been halved.

HIGH-SPEED MOTORCOACHES IN SWITZERLAND.—Main-line train operation in Switzerland has been performed very largely by powerful locomotives in the past, but multiple-unit operation for passenger trains has been adopted to a limited extent, and it has recently come to our notice that the Swiss Federal Railways have put into service three new motorcoaches, built as luggage vans, for operating light trains on the Zurich—Geneva line at speeds up to 125 km.p.h. (77 m.p.h.). Construction of these coaches was undertaken by the Oerlikon Company (Ateliers de Construction Oerlikon) working in conjunction with the technical staff of the Swiss Federal Railways. Single-phase current is supplied by overhead line and each coach is provided with a pantograph collector. A

single motorcoach is normally required to haul a train of four bogie passenger coaches but the provision of multiple control by means of electro-pneumatic contactors enables two or more motorcoaches to be operated from one cab simultaneously and thus trains of up to 12 passenger coaches (15 vehicles in all) may be run if required.

Electric braking is used exclusively down to a speed of 10 km.p.h. (6.2 m.p.h.) and the necessary resistances are mounted in the double roof. The starting connections are said to be of a new kind giving smooth acceleration. The traction motors are axle-hung, and there are two for each of the two bogies. On the test bed a motor was found to develop a tractive effort at the wheel-rim of 1,100 kg. (2,440 lb.) at 84 km.p.h. (52 m.p.h.) and the maximum effort was 1,670 kg. (3,680 lb.).

The normal train weight unladen is 275 tons, of which the motorcoach represents 48 tons. The passenger capacity is 500 persons (or 37 tons) and the luggage capacity 3 tons. A speed of 68 m.p.h. (110 km.p.h.) is attained on a level track in 150 sec. The average retardation, using electric braking only, is 2.38 m.p.h.p.s. on a level track and between the speeds of 77.5 m.p.h. down to 6.2 m.p.h.

The traction motors are not directly across the main supply but energised through a transformer of 900 kVA continuous summer rating. This is oil-immersed and its temperature rise is limited by means of forced cooling to 100° F. In winter a higher temperature rise is permissible and the transformer is then capable of sustaining a load some 200 kVA greater. It is not clear whether advantage is to be taken of this seasonal gain in load-carrying capacity.

International Railway Associations—II

Some notes on the work and scope of the various associations concerned with international traffic, principally on the European Continent

IN the following instalment brief details are given of some of the better-known associations, which are concerned with the preparation of international passenger and goods train timetables, and with the issue of through tickets. It may be added that similar conferences to those normally convened by these bodies are at present called by the Reichsbahn, and the German will is imposed on occupied and subject countries in regard to international traffic; such conferences are not held under the conditions of the associations nor within their framework.

European Timetable Conference

The association *Conférences Européennes des Horaires des Trains*, administered by the Swiss Federal Railways at its Berne head offices, organises in regular meetings the through passenger train services. It has a counterpart in the goods train timetable conferences established at a much later date. It includes a wider range of railway members than either the carriage or wagon unions, besides a number of other transport administrations connected with through passenger traffic by rail in Europe. The British main-line railways, as well as the broad-gauge European systems with the exception of the Irish railways, are among the members. The association holds meetings at regular intervals before the principal changes in the timetables are made to arrive at the best procurable timings for all international trains, together with arrangements for the places and times of customs, passport, and other frontier formalities.

The association had its beginning in 1860 when the frontier railway administrations of France, Baden, Wurtemberg, Bavaria, and Austria met in conference at Munich. This was followed by other meetings at regular intervals, and in 1870 extended to include all South German and Swiss railways. From 1871 the conferences were called under the auspices of the *Verein Deutscher Eisenbahn Verwaltungen*, usually twice a year. The spring conference in 1875 was attended by Russian and Italian railway administrations, and the autumn conference in the same year saw the participation of the first British railway, the Great Eastern. In those years there were many railway companies in most countries, and the participation grew fast. Conferences were held twice a year well in advance of the summer and the winter timetables, which up to 1914 always came into force on May 1 and October 1 on all continental railways.

Until January, 1881, the conferences were always held in a German town selected by the *Verein*; the first conference outside Germany was held in Brussels in January, 1882. The association called its conferences either summer or winter timetable conference up to 1890. In 1890 the name *International Timetable Conference* was adopted, but the following year the name was changed into its present title of the *European Timetable Conference*. Twice yearly meetings continued until 1909. In that year it was decided to meet only once a year, in October, and to introduce important changes in the summer timetables, and to make only minor adjustments, if necessary, in the winter timetable.

The conferences were not called in the war years 1914 to 1919, but were resumed in 1920, since when delegates from the League of Nations and from European Governments have attended. The conferences continued until 1938, when the last was held; the conference called for October, 1939, did not take place.

The office of this association is in Berne at the Swiss Federal Railways head offices. Members are all European railways which operate parts of international through passenger train services, certain Governments, the League of Nations Communications & Transit Section, steamship companies with services which form a link in through rail services, air companies operating services which connect with international train services, and the sleeping and dining car companies. Combined with these timetable conferences, but under a separate administrative association, are now the annual *International Carriage & Vans Union* conferences.

European Goods Train Timetable Conference

The *Conférences des Horaires des Trains à Marchandises* is a separate association from the European Timetable Conference, composed of fewer European continental railway administrations, and inaugurated much later than the European Timetable Conference. Until a decade or two ago the general practice in the case of international goods transport was that every railway system ran its goods trains to the frontier station just as an ordinary inland goods train. Wagons and waybills were handed over to the railway administration of the neighbour State, which after the customs formalities had been completed, made up for further conveyance its own goods train, wagon by wagon, just as with its ordinary internal trains.

After the first world war a few railway administrations came together to discuss means of handing over goods trains at the frontier in suitable composition and at suitable times to allow a through run with the least delay and without marshalling, with only a change of locomotive power and of train crew. Arrangements to this effect were in being between the Austrian, Czechoslovak, Hungarian, Italian, Yugoslav, and Polish railways, as well as between the German Reichsbahn, the Hungarian, and the Austrian railways.

These local arrangements eventually led to the establishment of the official *European Goods Train Timetable Conference*, in 1930, and most of the continental standard-gauge railway administrations operating through goods traffic became members. As, on the whole, fluctuations in goods traffic are less regular than those in passenger traffic, the timetable conferences are held twice every year. The association is administered by one of the member administrations, elected for five years. The Czechoslovak State Railways were elected for the first period, and re-elected for the second. The work of the association ceased at the outbreak of the 1939 war. The international goods train timetables are prepared for summer and winter services, and they are issued in the French, Italian, and German languages to the various member administrations.

Wartime conferences outside the association's patronage have been held by the Axis powers and their satellites, the last one in Sofia in July, 1942, between representatives of the Reichsbahn, the Italian, Hungarian, Croatian, and Bulgarian Railways, and Government and Wehrmacht representatives, for the main purpose of planning goods train timetables for the conveyance of agricultural produce from Bulgaria to Germany and Italy during the winter.

International Union for the Issue of Through Tickets

The *Union Internationale pour l'Emission de Billets à Coupons Combinés* is administered by the Belgian National Railways at their head offices in Brussels. The union has adopted a convention for the issue of the well-known combined coupons tickets for international journeys on most of the European railways, connecting shipping and bus routes, and similar transport organisations in North Africa. Every railway, shipping, or bus section has its own coupon and fare, and coupons for an unlimited number of sections are assembled in book form to cover a whole journey. Rules and regulations with regards to the size, colour, and text of coupons, the methods and conditions of issue, and the clearing procedure and other matters, have been agreed upon by the members and other administrations.

Before 1914 the *Verein Deutscher Eisenbahn Verwaltungen* had in operation a system of combined coupons, which was generally followed by other European railways. The international working ceased at the outbreak of war in 1914. After the war, the Belgian, British, French, Italian, Netherlands, and Swiss Railways established a regular international union in 1921. Other railways were invited to join the union, but at first had no voting rights. The issue of combined tickets was then resumed in 1922. In 1924 all members, old and new, were made equal. Up to the outbreak of the present war most European and North African railways and a number of steamship companies were members. Notable exceptions were the German, Norwegian, and most of the Balkan railways. All these administrations, however, co-operated fully in the union's scheme.

International Containers Bureau

When the use of containers in rail transport became more and more general in the last decade before the war, the International Chamber of Commerce took the initiative for calling a conference in Paris in 1933 to discuss ways and means of facilitating international transport in containers. The railway administrations of Austria, Belgium, Czechoslovakia, France, Germany, Great Britain, Italy, Poland, Portugal, and Switzerland, as well as a number of international transport organisations, forwarding agents, and container manufacturers, took part. A union was formed under the name of the *International Containers Bureau*, and an executive committee was appointed to devise rules for the standardisation of containers, loading equipment, railway and road vehicles to be used, safety devices, customs formalities, refrigeration, heating, ventilation, special containers for liquids, and other subjects. Some progress had been made when war broke out in 1939, but a general convention for free circulation of accepted standard containers was not yet in operation. The secretariat of the bureau was established in Paris, but is not functioning at present.

L.M.S.R. Diesel-Electric Locomotives—III

A review of developments in the use of this form of motive power from the operating standpoint

BEFORE leaving the subject of hump shunting, it may be of interest to describe the speedometer and mileometer with which the diesel-electric locomotives are equipped and which, so far as is known, have not been mentioned in detail in any previous publication. It is not the general practice to fit these devices to steam shunting locomotives.

In the light of the closer scientific study which has been made of shunting in the years immediately preceding the war, it was considered desirable to equip the new diesel-electric locomotives with speedometers, especially as some of them were intended to be used at hump yards, including one converted to mechanised (hydraulic-railbrake and electro-pneumatic point) working, where constancy in propulsion over the hump and the desirability of observing pre-determined speeds of the low order of 1.75 and 1.25 m.p.h. were considered essential.

All the L.M.S.R. diesel-electric shunting locomotives are, therefore, fitted with an "electric-type" speedometer, consisting of the following three main components, as illustrated below:—

- (A) Transmitter;
- (B) Indicator;
- (C) Mileage counter.

(A) Transmitter

This is a small a.c. generator giving

a voltage proportional to the speed at which driven. A 2-1 gear box is fitted to obtain the necessary rotor revolutions to give steady readings at the very low speeds used. The transmitter operates for either direction of rotation, thus covering forward and reverse working of the locomotive.

(B) The Indicator

This comprises two voltmeters, calibrated in "miles per hour," fitted in a case, one above the other, and illuminated at night by electric lamps inside the case. The two meters are connected in parallel—the smaller one at the top indicating up to 20 m.p.h., and the lower larger one up to 2 m.p.h. It is not necessary to switch out the low range meter when running at speeds over 2 m.p.h., and arrangements are incorporated whereby the pointer remains hard over on the spring stop till the speed again falls within range. Both pointers move clockwise for reverse as well as forward movements. The instruments are substantially constructed and shock absorbed against vibration and shunting concussions. The unit is arranged for three-point fixing on a bracket capable of being swung into the most convenient position for reading over the instrument panel in the cab of the locomotive.

(C) Counter

This is a robust cyclometer suitably

geared to be driven off some revolving member, the speed of which is known in relation to the m.p.h. The drive is through a flexible coupling the same as the one used on the alternator transmitter. It is arranged to add miles for both forward and reverse working, and can be placed anywhere convenient on the locomotive to obtain periodical readings.

Shunter's Step

Another innovation by the L.M.S.R. on the diesel-electric locomotives is the shunter's step, illustrated on page 577. Instances occur at some marshalling yards where the shunter working with a shunting locomotive travels on it for short distances to save time. This happens where shunting is performed by the same locomotive at different parts of a yard, and the locomotive runs light between these points, and also when in the process of marshalling a train, the locomotive has to move some distance from one siding to another, or to proceed into a fan of sidings to close wagons together, or for other purposes. When travelling any distance, the shunter would travel in the cab with the driver, but there are many instances where the distances to be traversed are so short that the shunter rides on the steps leading to the cab, holding on by means of the commodore handle, provided he knows there is adequate clearance where the locomotive travels.

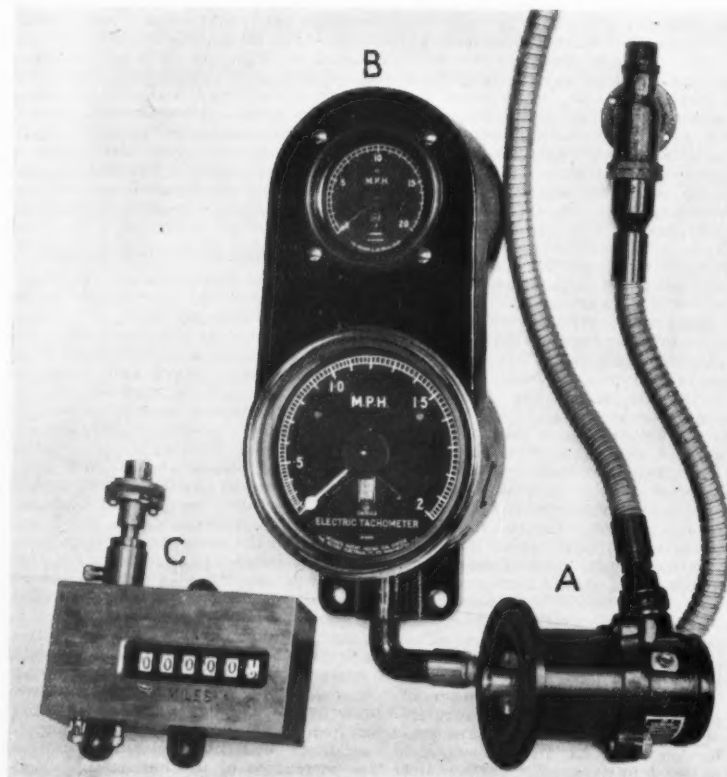
At the suggestion of the Chief Operating Manager, the Chief Mechanical Engineer incorporated in the design for the L.M.S.R. 350 h.p. diesel-electric locomotives a shunter's step in the form of a recess in the fore part of the footplate on either side of the locomotive at the end opposite to the cab.

It is easy to mount from ballast level, and of adequate width, with upright grab rails, and a socket and clip for shunting poles are provided. A back plate prevents a man's foot slipping through, and treads are fixed to afford good foothold. The step is, of course, handier to use, and more commodious than the usual type of steps to the engine cab.

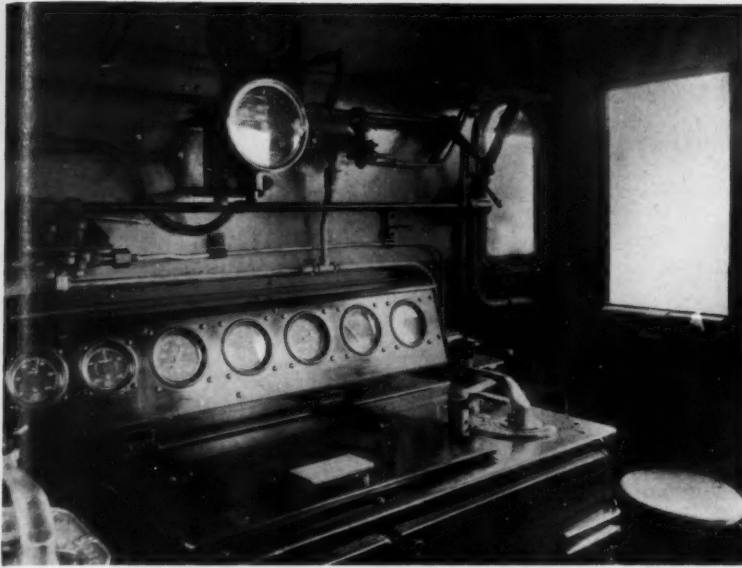
Use of Diesel Locomotives for Special Duties

The special characteristics of the diesel-electric locomotive have on occasion proved useful outside the normal shunting sphere. An instance occurred in the summer of 1941 when an electrical stator of exceptional dimensions and weight had to be transported by rail. The stator weighed 130 tons and is one of the most concentrated loads of its kind ever conveyed by rail. The extreme width was 13 ft. 1½ in., which is 3½ to 4 ft. wider than the average railway carriage. In order to distribute the weight on the rail vehicles on which it was loaded, a cantilever was used with balance weights, as there are definite limitations on the load per axle which can be permitted.

To avoid the exceptionally-wide load fouling structures or traffic on adjoining lines, it was necessary when passing over certain sections of the line for the stator to be out of centre line on the wagon and with the excess projection on the "six-foot" side, that is the side where the adjacent line is, and for this opposite line to be kept entirely clear of any other traffic while the stator was passing. This is carried out by what is known in railway parlance as "blocking the opposite line in sections" and to avoid large-scale monopolisation of two sets of rails (up and down) to the detriment of other traffic and operations generally the "blocking"



Close-up view of speedometer and mileometer



Interior of cab, showing instrument panel, and right-hand side controls. (Dead-man's foot pedal cannot be seen in illustration)

is performed in successive short sections of line. Actually it was necessary to stop at certain points and slew the load on the wagon in defined amounts up to 12 in. out of centre, restoring it or altering it for conveyance through the next section.

In addition, it was necessary at a number of places to remove temporarily certain line equipment which the load would otherwise foul, such as stay wires to signal posts, ground signals, and signal ladders.

Further, the margin of clearance of other structures at certain places, such as overbridges, parapets, signals, level crossing gates, was so fine that the load could be permitted to pass only at restricted or dead slow speeds and with extreme caution and close observation.

The whole transaction, weight, dimensions, and character of the load and the stringent conditions which it was necessary to lay down from a Permanent Way and Mechanical Engineering standpoint, made it essential so far as conveyance over the L.M.S.R. was concerned to limit the maximum speed to 15 m.p.h., and to apply lower specified maximum speeds of 12, 10, 8, and 6, etc. m.p.h., and dead slow, over certain sections and when passing particular points. The conditions laid down were from an operating standpoint so numerous and onerous that the transit had to be confined to Sunday when traffic generally is normally at its lightest.

In all the circumstances it was felt that the working over the L.M.S.R. line could be more readily undertaken, and the stringent slow speed limitations more accurately gauged if one of the L.M.S.R. 350 h.p. 0-6-0 diesel-electric shunting locomotives were employed. By means of the speedometer with which these engines are equipped it was possible to adhere more correctly to the speeds laid down by the L.M.S.R. Engineering Departments in addition to achieving smooth running in starting and stopping with this most exceptional load.

An illustration is given on the following page which shows the composition of the special train whilst

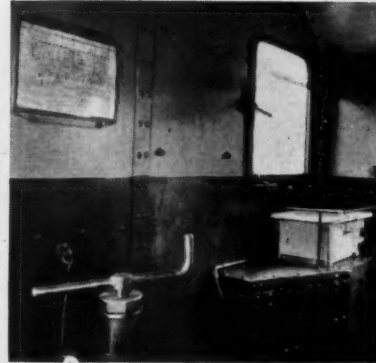
running over the L.M.S.R. line, as under:—

L.M.S.R. diesel-electric locomotive 7091
Vans (2) for inspectors and others
Trolley (for balance weight)
Flat (for cantilever)
Transformer wagon (with stator)
Flat (for cantilever)
Trolley (for balance weight)
Brake van (for goods guard)

The gross weight of the train was approximately 400 tons and the employment of a diesel-electric locomotive to haul the train over certain intricate sections of the L.M.S.R. line considerably facilitated the working and safe delivery of the stator to destination. A similar load was also successfully conveyed under practically the same conditions in the summer of 1942 by one of the latest types of diesel electric locomotive.

Indirect Benefits

One of the advantages usually claimed for the diesel shunting locomotive as compared with its steam counterpart is economy in fuel, but obviously the question as to whether it is a financial benefit depends upon the price at which fuel oil can be obtained. This varies according to world geography and other considerations; for instance, the cost in America can be expected to be reasonably lower than in Great Britain as oil is not found in considerable quantities in this country, and therefore the sea transport required to import from abroad must tend to swell the purchase price. Nor is oil yet pro-



Interior of cab showing locker, food warmer, hand brake, and lubrication chart. This illustration is reproduced on a considerably smaller scale as compared with the general view of the interior of the cab

and that is the fact that the diesel engine consumes only the fuel required for the weight of work it performs and the speed at which it performs it. The coal consumption on a steam locomotive cannot be limited exactly to the weight and speed of the work performed—hence some unproductive burning of coal is inevitable; for example, for lighting up, during standing time for meals and during intermittent idle periods due to fluctuating traffic and the unavoidable irregular arrival of trains, and for other causes during shunting operations. Apart from the advantage that the diesel-electric locomotive does not lend itself to fuel waste, there is another benefit in the use of oil as compared with coal, that is, in the cubic space occupied by the respective fuels.

For the conveyance of diesel fuel oil from suppliers' works to locomotive running sheds the L.M.S.R. uses a number of reconditioned creosote or other rail tank cars and these are supplemented as necessary by rail tank cars owned by the oil supply contractors. Analysis over a period indicates that the average load of the rail tank cars used is not far short of 2,500 gal. Experience shows that the consumption of diesel fuel oil is anything from, say, 200 to 300 gal. a locomotive a week according to the actual number of hours worked and the character of the shunting. Assuming a user of 250 gal. per locomotive per week, a rail tank car of 2,500 gal. capacity therefore carries sufficient oil for one locomotive for 10 weeks' work.

The coal consumed by ten steam 0-6-0 Class 3 freight tank locomotives has been calculated in comparison with the quantity of fuel oil used by ten diesel-electric 350 h.p. 0-6-0 locomotives subsequently employed on the same shunting duties with the following result:—

Locomotives:—		Steam	Diesel
Fuel used per locomotive per hr.	...	1.73 cwt. coal	2.09 gal. oil
Fuel required for 144-hr. week	...	249 cwt. {say, 12½ tons coal}	300 gal. oil

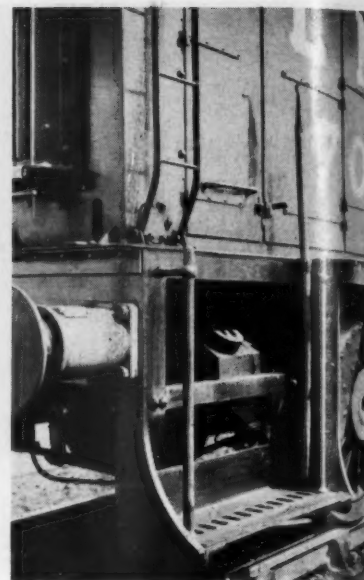
duced from British coal by hydrogenation or other process in sufficient quantities to affect appreciably the price question. Moreover, taxation for political reasons may affect the price of fuel oil. Again, the war has upset price levels.

One thing remains constant, however,

In the figures below the full capacity of one of the larger rail tank wagons in use, that is, 3,000 gal., is compared with the normal types of locomotive coal wagon used, that is, 20-ton and 13-ton capacity. Actually these coal wagons do not always load to full tonnage capacity (the



View showing shunter's step in use at flat yard



Close-up of shunter's step

	Steam	Diesel
Typical load of—		
Oil rail tank car	—	3,000 gal.
20-ton coal wagon	18½ tons	—
13-ton coal wagon	12½ tons	—
Period during which one rail vehicle will provide fuel for one locomotive—		
3,000 gal. oil tank car	—	10 weeks
20-ton coal wagon	1½ weeks	—
13-ton coal wagon	1 week	—
Number of rail vehicles required to provide fuel for 10 locomotives for one week—		
3,000 gal. oil tank car	—	1 tank car
20-ton coal wagons	7 wagons	—
13-ton coal wagons	10 wagons	—

weight depends upon the class of coal, etc.).

The foregoing comparison could be continued to greater lengths to demonstrate the advantage in rail-vehicle user which oil possesses over coal, but if the data be reduced to a simple equation it will be seen that:—

- 1 oil tank wagon of 3,000 gal. capacity equals
- 7 coal wagons of 20-ton capacity equals
- 10 coal wagons of 13-ton capacity

From this comparison the following two main points emerge in favour of the use of the diesel-electric locomotive:—

1. Saving in number of units required for rail conveyance of fuel
2. Saving in space required to accommodate fuel supplies
 - (a) on sidings
 - (b) in storage
 - (c) on locomotives

As to (1), assuming the time occupied in a complete round journey for an oil tank car and a locomotive coal wagon are

the same, a lesser number of rail units is required in the aggregate for the transport of the fuel required for a given amount of shunting work, if that fuel is oil.

So far as (2) is concerned, it is necessary to explain that although practically all large motive power depots on the L.M.S.R. are now equipped with mechanical coal-plant there are many where locomotives are coaled direct from wagon. At places where there are locomotive coal-plant, there are very few, if any, which are capable of holding in their hoppers more than one day's consumption by all the steam locomotives using the particular motive power depot. To cover week in, week out, and week-end, holiday, and other fluctuating conditions associated with the arrival of coal, it is essential there should always be an adequate supply of the required qualities of coal at the respective motive power



Train conveying exceptionally heavy and out-of-gauge load worked by diesel-electric locomotive

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Close-up of out-of-gauge load

depots, which varies up to a matter of a few weeks' supply. This supply, as every Locomotive Superintendent and Freight Traffic Controller knows, has to be held in wagons on sidings in the locomotive shed premises, and very often in traffic sidings awaiting access to the locomotive shed premises. In fact, sidings are definitely provided and allocated for the purpose, thus permanently utilising space which is often valuable.

No methods have yet been devised to permit of large scale holding of locomotive coal in hoppers or silos, which would permit of wagons being unloaded immediately on arrival, thus quickening the turnround of the vehicles, enabling the total required number to be reduced, and avoid the necessity for having to provide so much siding space. (Coal stacked for reserve purposes is excluded from these remarks.)

The position as to locomotive fuel oil is different. First there is the lesser bulk needed for a given quantity of work as compared with coal, and if storage tanks of sufficient capacity and in adequate number are provided to hold enough oil for the requirements of all the diesel-electric locomotives allocated to the depot, to cover a period of several weeks, or whatever period the management deems prudent having regard to its knowledge of the general trend of supply and demand, the rail tank cars can be unloaded immediately on arrival into the storage tanks and liberated so that it is unnecessary to monopolise siding space either at locomotive running sheds or in traffic yards for holding current working stocks of fuel. It has already been made clear that oil takes up less room than coal and there would seem to be no difficulty in still further enlarging bulk storage

capacity where necessary or justified with an absolute minimum of superficial area.

The fuel-holding capacity on the locomotive has already been referred to as being one of the considerable advantages in favour of the diesel-electric, but whilst on the subject of relative space occupied it may be interesting to complete the comparison by mentioning that the L.M.S.R. standard Class 3F tank locomotive has a coal-bunker capacity of 24 tons and that based on typical shunting

tests previously outlined 2 tons $1\frac{1}{2}$ cwt. of coal are consumed a day (that is 1.73 cwt. an hour multiplied by 24 hr.). The 350 h.p. diesel-electric locomotives now in service have a fuel tank capacity of 661 gal. (main 586 and service tanks 75 gal.), so that assuming an average consumption of, say, 282 gal. a week of 144 hr., only 47 gal. of fuel oil are used a day. Thus the steam tank locomotive requires to have its coal bunkers replenished at least once every 24 hr., whereas the diesel-electric needs its fuel oil tanks replenishing about once every 336 hr. (that is, 14 days).

Financial Results

It is not the practice of the L.M.S.R. to publish detailed locomotive costings, and, particularly because of war conditions, no exception can be made in the case of its diesel-electric shunting locomotives. A comparison with steam might be interesting; indeed, diesel operating-cost figures could not be accurately presented unless set alongside steam figures compiled on a corresponding basis and in respect of similar work performed. In any case, this could not be done for some time as a sufficiently long period has not yet elapsed since the diesel-electric units were introduced to enable maintenance and repair costs to be reliably assessed, and, moreover, the war has upset all price levels. In all the circumstances, therefore, we must accept the view that the L.M.S.R. would not have embarked upon its considerable programme of diesel-electric equipment had it not felt satisfied that the all-in cost, including interest on capital, would be fully justified.

(Concluded)



Fuelling direct from rail tank car

CORDOBA CENTRAL TRUST LIMITED.—Sir Follett Holt, the Chairman, speaking at the ordinary general meeting on December 2, said that further progress had been made in the affairs of the trust since it met last year. The year's interest on the State Railways Bonds and the amount of the sinking fund had been promptly received from the Argentine Government. By the operation of the sinking fund and by the purchase from other funds available, a further

£205,373 of the first debenture stock had been redeemed since June 30, 1941, reducing the amount of that stock outstanding by over £1,000,000 since the company became a trust company after the sale of the railway to the State some 3½ years ago. The deficiency in the capital, or reconstitution account, which at first stood in the balance sheet at June 30, 1939, at £547,889, had been reduced during the past year by a further £67,806, and now stood at £231,235.

Moreover, the liquidation of the company's affairs in the Argentine had continued to make progress, with a consequent reduction in expenses in the Buenos Aires office. The number of lawsuits outstanding had been reduced during the year from 60 to 33. All this had improved the position of the "B" debenture holders, who the company now proposed should receive a total of 4½ per cent. for the past year as compared with 4 per cent. for the previous year.

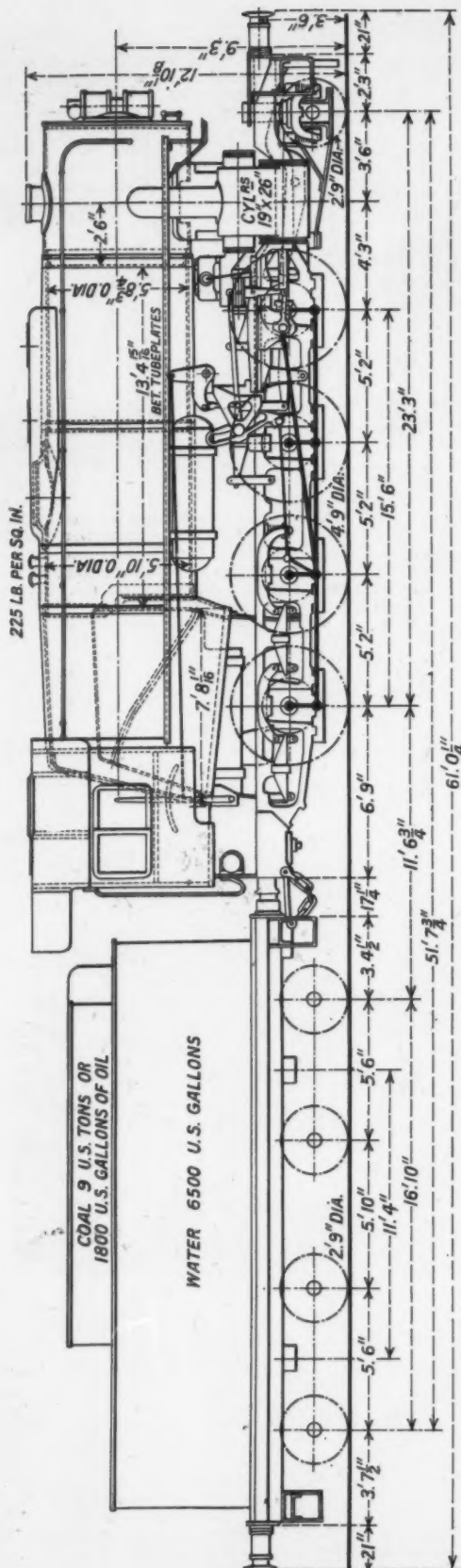
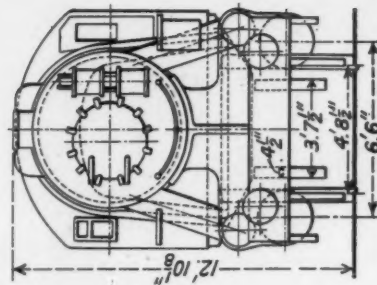


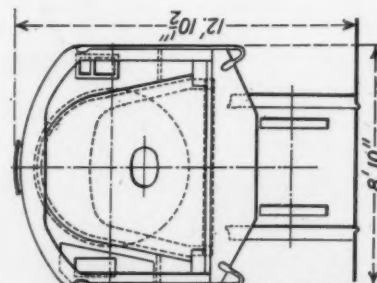
Diagram showing the principal dimensions of the American-built 2-8-0 "Austerity" locomotive and tender capacities



Front elevation of locomotive, showing relative size of smokebox door

TABLE OF PRINCIPAL DIMENSIONS AND WEIGHTS

Boiler dimensions—		Locomotive	
Length between tube plates ...	13 ft. 5 in.	Length between tube plates ...	13 ft. 5 in.
Dia. of barrel ...	5 ft. 10 in.	Dia. of barrel ...	5 ft. 10 in.
Thickness of barrel plates ...	3/8 in.	Thickness of barrel plates ...	3/8 in.
Length of smokebox ...	5 ft. 6 in.	Length of smokebox ...	5 ft. 6 in.
Grate—		Grate—	
Length ...	7 ft.	Length ...	7 ft.
Width ...	5 ft. 10 in.	Width ...	5 ft. 10 in.
Area ...	41 sq. ft.	Area ...	41 sq. ft.
Boiler pressure ...	225 lb. per sq. in.	Boiler pressure ...	225 lb. per sq. in.
Weight (estimated) of engine, in working order ...	72 tons	Weight (estimated) of engine, in working order ...	72 tons
Weight (estimated) of tender, in working order ...	58 tons	Weight (estimated) of tender, in working order ...	58 tons
Total weight, engine and tender ...	130 tons	Total weight, engine and tender ...	130 tons



Rear-end elevation of locomotive, without tender, showing overall width

AMERICAN-BUILT "AUSTERITY" LOCOMOTIVE

(See article on opposite page)

American-Built "Austerity" Locomotives

A simple 2-8-0 design conforming to military and main-line requirements in Great Britain and other countries

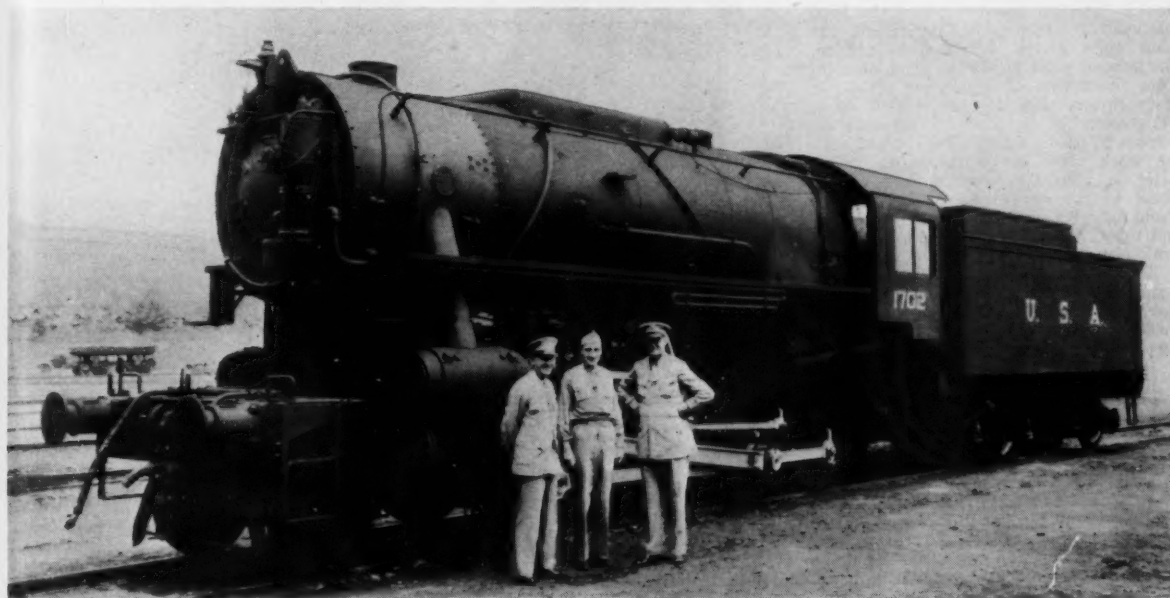
COMING soon after the placing of orders with British locomotive builders by the Ministry of Supply for "Austerity" locomotives as described in our November 20 issue, there has arrived in this country the first shipment of engines of a generally similar type built in America. These engines were unloaded with cere-

American practice. Several engines of this class are now in service in this country and will be used by both the main-line railways and by the military authorities as required.

The main frames are of the bar type and this has permitted the use of a firebox with a wide grate which gives an area of

and $\frac{1}{4}$ in. respectively, and the valve travel is $6\frac{1}{4}$ in. The reversing gear is operated by a hand lever.

The cab is of steel-plate construction with the driver's controls arranged for right-hand drive. In the front of the cab on the left side is a door giving access to the high running platforms which are placed along the full length of the boiler on each side of the engine. In accordance with American practice the sandboxes are mounted on top of the boiler barrel, and feed sand to the front of the leading coupled wheel and to the rear of the driving wheels. Steam braking is used on the engine, but both Westinghouse and



One of the first of the 2-8-0 locomotives built in America for war service overseas. Standing before the engine are (left to right) Lt.-Colonel E. F. MacFadden, Major J. W. Marsh, who was responsible for the design of the engine, and Colonel W. G. Knight, all of the U.S.A. Army Corps of Engineers

mony in the presence of Allied Army and Ministry of Supply officials. Among others were Colonel Norman A. Ryan (Acting Chief of Transportation Corps, U.S. Army (E.T.O.)), Major General D. J. Mullen, D.S.O., O.B.E., and Mr. R. A. Riddles, Deputy Director General for Royal Engineer Equipment, Ministry of Supply. The general appearance of the new engines is shown in the illustration which is of one of the first to be built, and from the diagram which represents the machine as received in this country. Several well-known American firms will be engaged in manufacturing engines to this design. Those which have arrived were built by the American Locomotive Company.

The design is of special interest because, although the locomotives have been built to conform to British loading gauges, they still retain many features peculiar to

41 sq. ft. The boiler is of ample proportions, with a parallel barrel of normal rivetted construction, and with the round-top type of firebox casing. The inner firebox is built of steel plates with the side and back plates $\frac{3}{8}$ in. thick and the tube-plate $\frac{1}{2}$ in. thick. The seams are welded. The boiler contains 150 steel boiler tubes of 2 in. dia., and 30 steel flue tubes of $5\frac{1}{2}$ in. dia. The working pressure is 225 lb. per sq. in. The smokebox is in accordance with American practice and has a removable front plate and a small hinged circular door.

The two outside cylinders provided with mechanical lubrication are of 19 in. dia. with a piston stroke of 26 in., and steam distribution is by piston valves of 10 in. dia., situated above the cylinder and actuated by valve motion of the Walschaert's type. The lap and lead are $1\frac{1}{4}$ in.

Vacuum automatic brake apparatus are fitted to the engine for train working. Air reservoirs are situated on both sides of the engine under the running platforms.

Buffers and drawgear follow normal British designs. The spring gear, utilising both laminated and coil springs, is compensated through the locomotive. The tender has a capacity of 9 tons of coal (or 1,800 gal. of oil) and 6,500 gal. of water (U.S. measures) and runs on two four-wheel bogies.

Further particulars of these locomotives are given in the accompanying diagram. We are indebted to Colonel Norman A. Ryan, Acting Chief of Transportation Corps, and Major Sidney H. Bingham, Officer in Charge, Military Railway Branch, Transportation Corps, U.S. Army (E.T.O.), for the information contained in this article.

SWISS RAILWAY JUBILEES IN 1942.—Among the Swiss lines opened in 1892 are two mountain railways, both of 0.81 m. gauge and operated with the Abt rack system, and each 7.6 km. in length. One is the Rochers de Naye Railway, the last section of which was opened on Sep-

tember 16, 1892. It has been operated electrically since 1938, and its conversion was described in THE RAILWAY GAZETTE, Electric Railway Traction Supplement, of August 19 of that year, with a map and an illustration of one of the modern lightweight motor-coaches. This line and the

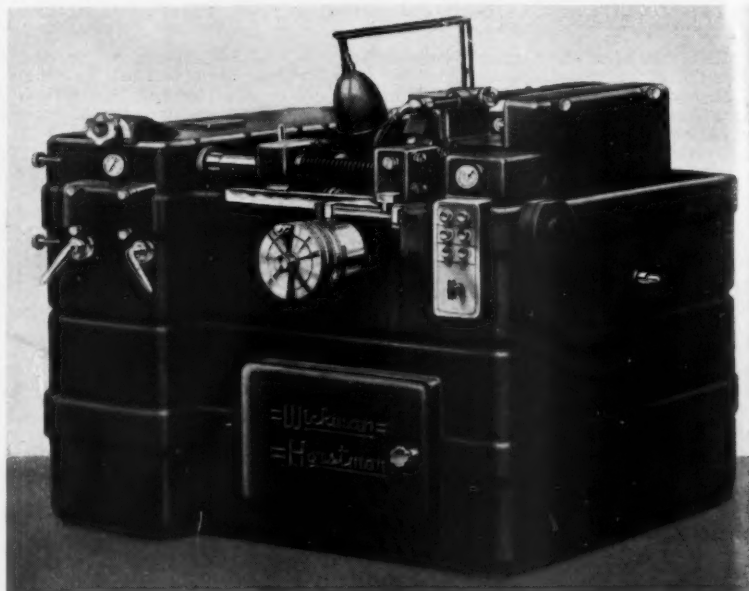
connecting Montreux-Glion Railway are under the same management as the Montreux-Oberland Bernois Railway. The other line is the Brienz-Rothorn, which was opened on June 17, 1892, and still is steam-operated. It was closed in 1915 and reopened in 1930.

A New Thread Grinding Machine

A Wickman-Horstman product combining accuracy with low cost

THE Wickman-Horstman machine illustrated herewith has been designed to obviate a difficulty associated with the operation of thread-grinding in engineering production. Until the last few years this process has been regarded mainly as a means of producing screw-thread gauges, and grinding for the purpose generally has been considered a much too expensive method. The Wickman-Horstman thread grinder will produce at low cost and by unskilled labour accurately-ground threaded components of the kind employed in various industries, at the same time giving trouble-free service. The general principle of the machine combines the action of a grinding wheel, in the periphery of which are formed annular grooves of the correct shape of the threads to be cut in grinding contact with the work piece to be threaded. This latter is passed across the face of the wheel at the correct linear speed corresponding with the pitch of the thread, and thus a helix of pitch and form on the work is produced.

The machine, which is of compact design and exceedingly well made, is described in detail in the new catalogue sheet, No. W.41, which deals with model No. 2 and is issued by A. C. Wickman



Limited of Coventry. This leaflet gives illustrations of the machine and a diagram indicating the operations carried out by means of it.

An Interesting Locomotive Repair

BY the courtesy of Mr. O. V. Bulleid, Chief Mechanical Engineer of the Southern Railway, we reproduce on this page a series of photographs illustrating a method he has adopted at the Eastleigh Works of the company for repairing buffer

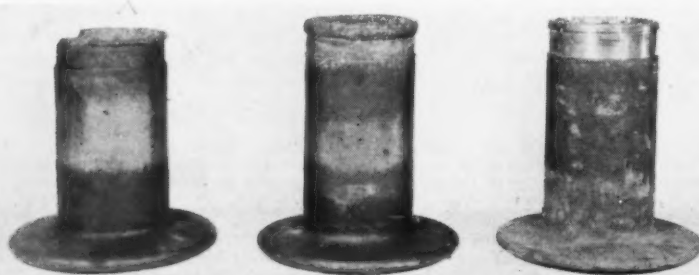
plungers, and briefly describe the system of operation. The method, which has effected a considerable saving in time and labour, has the further advantage of being easy and simple to effect.

Before its introduction a large number

of these buffer plungers were scrapped because of breakages at the back end, thereby wasting labour and material, both of which are valuable assets in wartime. The method of repair is clearly shown in the illustrations; the first step is to build up the broken portion by means of welding preparatory to re-turning; this, of course, is possible only in the case of small fractures.

For heavier fractures, as shown in the second set of illustrations, the broken portion is completely cut away and a new portion welded in its place; the buffer plunger is then re-turned to suit the existing casing.

By adopting either of these methods a saving of 50 per cent. can be effected in the cost of a new plunger irrespective of the additional cost in labour for machining.



Small fractures in buffer plungers are built up by welding and then re-turned



In heavier fractures the affected portions are cut away, and a new portion welded in its place before re-turning

WOMEN IN TRANSPORT.—In view of the increasing employment of women in the transport industry during wartime, it is of interest to record the respective totals of men and women, insured persons aged 16 to 64, engaged in transport in Great Britain & Northern Ireland at July, 1939, as given in the Ministry of Labour Gazette :—

	Males	Females	Total
Railway services ...	155,750	9,480	165,230
Tramway and bus services ...	198,430	12,740	211,170
Other road passenger transport ...	37,140	3,200	40,340
Goods transport by road ...	165,450	4,960	161,410
Total—Road transport	392,020	20,900	412,920
Shipping services ...	122,870	6,760	129,630
Dock, harbour, canal, etc., services :			
Port transport (docks, wharves, etc.) ...	135,410	1,610	137,020
Harbour, river, and canal services ...	25,570	510	26,080
Other transport, communications, etc. ...	17,770	2,890	20,660
Totals ...	849,390	42,150	891,540

RAILWAY NEWS SECTION

PERSONAL

The King has approved the appointment of Mr. W. P. Spens, K.C., M.P., who is a Director of the Southern Railway Company, as Chief Justice of India, in succession to Sir Maurice Gwyer, K.C.B., K.C.S.I., who is due to retire next April. Mr. Spens will take office on his arrival in India, which is expected to be in the summer.

Mr. S. J. Hungerford, Chairman, Canadian National Railways, who, as recorded in our November 13 issue, retired

lines, Mr. Hungerford became Vice-President in charge of Operation, Maintenance & Construction, in February, 1923, and held this position until the resignation of Sir Henry Thornton in 1932, when Mr. Hungerford was appointed Acting President. In the same year he was elected also President of the Central Vermont Railway, and was confirmed as President of the C.N.R. trustee board in 1934. This board was replaced by a directorate in 1936 and Mr. Hungerford then became Chairman as well as President. He was selected as President of Trans-Canada Air Lines upon the formation of that organisation early in

Mr. R. C. Vaughan, President, Canadian National Railways, who, as recorded in our November 13 issue, has become Chairman & President, on the relinquishment of the former position by Mr. S. J. Hungerford, has spent the whole of his business career in railway service. Mr. Vaughan was born on December 1, 1883, in Toronto, and began his career as a messenger with the Canadian Pacific Railway at the age of 15. He served later with the Grand Trunk Railway and joined the Canadian Northern Railway in 1903. He held various positions with the company, including that of Assistant to the Vice-President from 1910 to



Mr. S. J. Hungerford

Chairman, Canadian National Railways, 1936-42
President, C.N.R., 1934-41



Mr. R. C. Vaughan

who has become Chairman & President,
Canadian National Railways

from that position on September 30, was born near Bedford, Quebec, in July, 1872, and entered railway service in May, 1886, as an apprentice in the locomotive shops of the former South Eastern Railway, now a part of the Canadian Pacific system. Between 1891 and 1910 he held various positions with the C.P.R., including those of Master Mechanic of the Western Division, at Calgary, and Superintendent of the large locomotive and other shops at Winnipeg. In 1910 he resigned from the C.P.R. to become Superintendent of Rolling Stock, Canadian Northern Railway, with headquarters first at Winnipeg, and later at Toronto. In 1917 Mr. Hungerford was appointed General Manager of Eastern Lines, Canadian National Railways; in 1918 he became Assistant Vice-President of Operation, Maintenance & Construction; and in 1920 he was made Vice-President. When the C.N.R. absorbed the Grand Trunk

1937, a position which he relinquished in 1941, the year in which he relinquished also the Presidency of the C.N.R., while remaining Chairman until last September. In June, 1937, he was awarded the honorary degree of Doctor of Mechanical Engineering by the University of Vermont, in recognition of his notable work in restoring the Central Vermont Railway after the floods in 1927. He was made an honorary member of the Engineering Institute of Canada in June, 1937. Mr. Hungerford continues to act as President of National Railways Munitions Limited.

Mr. H. H. Powers has been elected a Director of the Central Vermont Railway Company (a subsidiary of Canadian National Railways), to fill the vacancy on the board caused by the retirement of Mr. S. J. Hungerford.

1918, and Assistant to the President from 1918 to 1920, when he was appointed Vice-President of the Canadian National Railways. Upon the amalgamation of the Canadian National lines with those of the Grand Trunk Railway, he became Vice-President in charge of Purchases, Supplies & Stores of the newly-co-ordinated Canadian National system. These duties were extended subsequently to include the Canadian National Steamships (West Indies) services. In 1939 he was appointed Chairman of the Defence Purchasing Board in Canada, and held this position until the Ministry of Supply was formed; for six months he practically performed double duty in this and in his railway capacities. Mr. Vaughan became President of the Canadian National Railways in 1941, in which year also he became President of Canadian National Steamships, the Central Vermont Railway, and the Grand Trunk Western Railroad;

in that year also he was elected a Director of Trans-Canada Air Lines.

Mr. G. F. Fiennes, Trains Assistant to the Superintendent, North-Eastern Area, York, L.N.E.R., who, as recorded in our November 6 issue, has been appointed Acting Assistant to the Superintendent (Eastern Section), Southern Area, was educated at Winchester and at Hertford College, Oxford, and entered the company's service in 1928 as a traffic apprentice. After receiving training in the various departments, he was attached for a short time to the staff of the Freight Rolling-



Mr. G. F. Fiennes

Appointed Acting Assistant to Superintendent (Eastern Section), L.N.E.R.

Stock Controller at York. In 1934 he was appointed Assistant Yardmaster, White-moor, and was transferred to Cambridge in 1935 as Chief Controller. In 1936 he returned to York, where he was attached to the Freight Train Section of the Superintendent's Office. In January, 1938, he was appointed Chief Controller and Chief Freight Trains Clerk for the Eastern Section, Southern Area. He went to Edinburgh in August, 1939, as Assistant District Superintendent, transferring to Cambridge in January, 1940, in the same capacity. His appointment as Trains Assistant to the Superintendent, York, dated from October, 1941.

Colonel Norman A. Ryan, who is General Manager (Lines West), Chicago, Milwaukee, St. Paul & Pacific Railroad, is Acting Chief of Transportation Corps, United States Army (European Theatre of Operations). Colonel Ryan commenced his railway service in 1909 in the Operating Department of the Chicago, Burlington & Quincy Railroad, and served subsequently also in the Operating Departments of the Southern Pacific; Chicago, Burlington & Quincy; and Los Angeles & Salt Lake Railroads. He served in France with the Railway Transportation Corps, A.E.F., returning to the United States in 1919, when he joined the Chicago, Milwaukee, St. Paul & Pacific Railroad, on the staff of the General Superintendent, Chicago. He subsequently held positions as Switchman; Trainmaster; Assistant Superintendent, Terre Haute Division; Superintendent of Terminals, Milwaukee; and Superintendent

Milwaukee Division, before being appointed Assistant General Manager, Chicago, in 1932. Colonel Ryan became General Manager (Lines West) in 1939.

Mr. E. B. Walker has been elected a Member of the Institution of Mechanical Engineers, and Mr. A. G. Walker has been elected a Member of the Institution of Civil Engineers; both are Directors of Walker Bros. (Wigan) Ltd.

BURMA RAILWAYS STAFF

Lt.-Colonel C. P. Brewitt, M.B.E., Burma Auxiliary Force, Deputy Traffic Manager (Transportation), has been awarded the honour of C.B.E., for outstanding work in connection with the retirement from Burma.

Major J. D. Lewis, District Locomotive Superintendent, has been awarded the M.C., as recorded in our July 31 issue.

As a result of the withdrawal from Burma and the establishment in Simla of the headquarters of the Burma Railways—now known as the Government of Burma, Railway Department—the following officers were reported as being in Simla in September: Mr. N. Johnson, Chief Executive Officer, and Locomotive & Carriage Superintendent; Mr. E. Proctor, M.C., Chief Engineer; Mr. E. I. Milne, Traffic Manager; Mr. T. C. Parker, Controller of Railway Accounts; Mr. W. J. Air, Secretary (Deputy Railway Commissioner); Lt.-Colonel C. P. Brewitt, C.B.E., Deputy Traffic Manager (Transportation); and Mr. C. G. Jones, Deputy Controller of Railway Accounts.

Mr. W. H. Chance, V.D., until March 14, Chief Railway Commissioner, has been granted leave preparatory to retirement, and is also in Simla.

After great difficulties, Sir John Rowland, Director, and Mr. W. Lakeland, Chief Engineer, of the Burma-China Railway Construction also arrived in Simla, but a party including Messrs. Manley, Whitehouse, Burgess, and Barnett was still marooned by floods *en route* from Burma in September.

We regret to record the death, after he had got through from Burma, of Mr. C. L. Kendall, Signal Engineer.

We regret to record the death at Sheffield of Mr. George Stanfield, M.I.Mech.E., who had been connected for 26 years with the research laboratories there of Thos. Firth & John Brown Limited.

Lt.-Colonel Reginald Tristram Harper, O.B.E., of Lamberts, Hascombe, Surrey, is among those who were nominated for Sheriffs in the King's Bench Division on November 12. Colonel Tristram Harper is a Director of the Buenos Ayres Great Southern and the Buenos Ayres Western Railway Companies.

Mr. George Lawrence, Clerk in charge of the Excursion (No. 2) Booking Office at Paddington Station, was 60 years of age on November 29, and retired after completing 45 years' service with the company, all of which he had spent as a booking clerk, with the exception of two years' service with the Royal Engineers (Railway Troops) during the war of 1914-19. Both his father, Mr. Owen Lawrence, formerly Stationmaster at Tiddington, and his grandfather, Mr. John O. Lawrence, who had served as a ganger since the opening of the G.W.R. line at Woodburn Green on the Maidenhead to High Wycombe section,

were in the employment of the company, and between them the trio have served for over 150 years.

Mr. H. W. Croft, Assistant to Stationery Superintendent, G.W.R., who, as recorded in our December 4 issue, has been appointed Stationery Superintendent in succession to the late Mr. W. H. Jarvis, entered the company's service as a junior clerk in the Stationery Office in 1903, and thus has served for 38 years in that department, with the exception of two years from January 1, 1917, to December 31, 1919, when he was attached to the G.W.R.



Mr. H. W. Croft

Appointed Stationery Superintendent, G.W.R.

Police Office for special duties. Mr. Croft was awarded the G.W.R. Signalling & Safe Working Certificate in 1907 and the G.W.R. Station Accountancy Merit Certificate in 1909; and, at the London School of Economics, in 1912, he was awarded its certificate for his knowledge of "The Law of Carriage by Railway." Immediately afterwards he was further awarded the First Class Certificate and the Institute's Bronze Medal of the City & Guilds of London for his knowledge of paper manufacture. In 1918-19 Mr. Croft secured the certificate of the St. Bride Foundation Printing School for his ability in connection with "Cost Finding and Estimating."

Captain Clement Jackson, M.C., is to act as Honorary Corresponding Member, for Devon & Cornwall, of the Institute of Transport.

We regret to record the death of Mr. Ernest Stone, who was Registrar, Southern Railway Company, from 1932 to 1938, in which year he retired after 47 years' service with the London & South Western and Southern Railways.

Mr. Sidney Garcke, C.B.E., has been appointed a Director of the North Western Road Car Co. Ltd., and has been elected Chairman of the company in succession to Mr. G. Cardwell, who, with Mr. S. Kennedy has left the board.

Mr. R. W. Birch has been appointed a Director of the East Kent Road Car Co. Ltd. in place of Mr. S. Kennedy, who has resigned his seat on the board.

TRANSPORT SERVICES AND THE WAR—169

Christmas Travel Restrictions

The Ministry of War Transport has announced that the limitations on railway passenger services during the Christmas period will begin a day earlier this year, on December 21, and will end a day later, on December 29, as we mentioned briefly last week (page 537). This decision has been taken because the pressure on the railways for essential purposes makes it necessary to avoid the running of extra trains before and after the holiday weekend.

The directions that have been issued to the railway companies are that no more trains are to be run on any weekday between December 21-29 (inclusive) than on an ordinary weekday in December of this year. Similarly, on Sunday, December 27, there will be no more trains than on an ordinary Sunday in December. Trains may continue to run in parts, but every part will count as a separate train. There will be no special facilities for travel by road.

Service Leave.—Approximately the usual number of Service personnel is expected to be at home on Christmas Day. This has been made possible by adjusting the days of travel to and from leave.

Visits to Evacuees.—Vouchers for visits to evacuees will not be available during the period.

Other Restrictions.—Free or assisted travel on leave by the civilian staff of Government Departments will be suspended during the period, as will also free travel by transferred Civil Defence personnel.

Travel To and From Ireland

Alterations have been made in the Christmas and New Year period arrangements for travel to and from Eire. Those announced in our November 20 issue (page 498) remain unchanged. For passengers to Eire the date for requiring a "sailing" ticket was advanced from December 14 to December 7, the quota for the period from December 14 to 23 (inclusive) having been exhausted. For journeys from Eire, "sailing" tickets will now be required during the period December 28 to January 9 (inclusive), instead of January 5, as announced previously, and as still applying to journeys from Northern Ireland.

Ice-Free Canals

A national scheme is to be put into operation this winter to prevent any hold-up of traffic by ice on the canals and other inland waterways. Six ice engineers and six traffic controllers have been appointed by the Minister of War Transport, and two

types of specially-designed ice-breakers will be used. One of the breakers, with sharp rising bows, will "fall" on the ice and crush a lane through it, and another can be rocked from side to side to break ice over a wide area. The traffic controllers will so direct vessels as to make the best use of available facilities.

Some 2,500 miles of canals came under Government control last summer. The principal canals and public carriers by canal (listed at page 89 of our July 24 issue) became Government controlled from July 1 last. Further carriers came under control on August 1 (see our September 11 issue, page 257), and, under the Canal Control (No. 3) Order, which came into force on October 1, the Minister of War Transport took control of the undertakings or portions of undertakings in Great Britain wholly owned by, leased to, or operated by, any one or more of the following undertakers:—

- (1) J. Barraclough & Co. Ltd.
- (2) W. Bleasdale & Co. Ltd.
- (3) T. Fletcher & Sons (Canal Transport) Limited.
- (4) G. D. Holmes Limited.
- (5) J. J. Tomlinson.

The release from any of these Orders of any undertaking or part of an undertaking may be made by writing under the hand of the Minister or of the Director-General or Deputy-Director-General or any Assistant Secretary of the Ministry of War Transport.

Control of Motor Fuel Order

The Minister of Fuel & Power has made a new Control of Motor Fuel Order, which came into force on Tuesday last, December 8. The main effect of the new Order is to bring into one document all the provisions of a series of existing Orders which govern the supply and use of motor fuel, but it also makes the following new provisions:—

(a) **Motor cycles.**—Basic ration petrol remaining in the tank may no longer be used except for an approved purpose.

(b) **Private cars.**—As before, these must not be used for journeys for which other means of transport are reasonably practicable. The new point is that, if other means exist, the onus of proving that they were not reasonably practicable in the circumstances of the particular journey rests with the defendant.

(c) **Hire cars and taxis.**—Among the purposes for which these are allowed at present to travel beyond their normal limits is to enable a member of H.M. Forces to join his unit at the end of his leave. This privilege is now restricted by

the new Order to personnel returning from leave of not less than 48 hours. The same privilege (with the same limitation) is extended to all personnel of the Allied Forces; and members of the Merchant Navy on their way to join a sea-going ship may also be carried beyond the normal limits of the hire-car or taxi.

Under the Cab Service Order, which came into force on August 1, 1942, taxis licensed by the Police or Local Authorities to ply for hire are restricted in operation to the area in which they are licensed to ply for hire or places not more than five miles from the nearest point on the bound-

The Burning Question

How much coal can the Railways save in the heating of trains and waiting rooms this winter?

Under the Fuel Target Scheme, supplies are restricted and are only available for transport's vital needs.

Like you, the Railways must economise in every way till victory—and a return to better travelling conditions.

BRITISH RAILWAYS
GWR-LMS LNER-SR

RAILWAY EXECUTIVE COMMITTEE

Recent R.E.C. advertisement

any. Provision was made in the Order for dealing with certain prescribed cases of urgency (see our August 21 issue, page 185).

The general effect of the Hire Service Order, which came into force on September 1, 1942, was to reduce the area in which hiring can be undertaken by cars licensed for hiring but not licensed to ply for hire. The Order reduced unrestricted hiring to a radius of 10 miles from the place where the proprietor keeps the car when not let out for hire. The Order also reduced to 75 miles the radius within which hiring can be undertaken for certain special purposes, subject to a declaration by the hirer. Hiring beyond this wider radius is limited by the Order, as in the case of taxicabs, to a small number of prescribed purposes of urgency where the use of other means of travel is impracticable.

Producer-Gas Vehicles in Service

The Parliamentary Secretary to the Ministry of War Transport has announced that there were 1,383 vehicles in Great Britain operating on producer gas at the end of October.

Producer-Gas Buses with Compression Ignition

The Glasgow Corporation Transport Department has been conducting research work on producer-gas propulsion since 1938. The famous pioneer gas producer owned by the Highland Transport Co. Ltd. was not considered satisfactory for operation in the city because of poor acceleration and lack of power, coupled with the disadvantage of storage and handling of the solid fuel. In 1940 an experiment was made with a producer unit built on to a diesel-engined bus converted to spark ignition and with a reduced compression ratio. This also proved inadequate in engine performance. The decision was then taken to experiment with diesel ignition of producer gas, and practical experience of the scheme, improved by various devices, has been obtained in the operation of buses on one of the less important routes. The

This is Urgent

The time has come for every person to search his conscience before making a railway journey. It is more than ever vital to ask yourself—

IS MY JOURNEY REALLY NECESSARY?

RAILWAY EXECUTIVE COMMITTEE

A new R.E.C. poster

improved installation was inspected recently by the Director-General of Gas Producer Vehicles to the Ministry of War Transport, and his technical adviser. We understand that they were so favourably impressed that intimation has now been received that the Government has adopted for general application the Glasgow scheme for operating diesel engines on producer gas.

The Government now controls the manufacture of producer plants and is allocating these to the different transport undertakings. Four units have been delivered to Glasgow, and the Ministry of War Transport has advised that 47 further units will be delivered by next June. The Glasgow Corporation Transport Department proposes to convert the Croftfoot to Govan Cross (4a) route to producer-gas transport. The buses will be operated from Larkfield Garage, and plans are being prepared for the erection of storage accommodation and handling plant for the fuel.

Vienna Tram Service Curtailments

Several curtailments of the Vienna tramway services were made on October 12. Four lines were completely suspended; others run only part-time; and other routes were shortened. This measure was ascribed by the *Neues Wiener Tagblatt* to shortage of personnel.

No Goods Delivery in Vienna

According to the *Neues Wiener Tagblatt* of October 10, the Vienna railway authorities have been obliged to cease delivering goods which arrive at Vienna stations. Consignees are notified of the arrival of consignments, and must then make arrangements to fetch them in hand-carts, etc., within 24 hours. After the expiry of this period, the goods are moved at the customer's risk and cost to a warehouse outside the goods yards, and perishable goods are sold.

Fate of Belgian Locomotives

More than 4,000 locomotives from Belgium have been requisitioned for transport to Germany and the Russian front, and only 800 out-of-date locomotives remain in Belgium, according to the Independent Belgian News Agency. It is not easy to see how these figures have been compiled. The total of steam locomotives in Belgium at the outbreak of war was approximately 3,845, of which 2,181 were owned by the Belgian National Railways, 156 by the Nord-Belge, and 454 by the Vicinaux.

Wagons-Lits for Croatia

The Official German News Agency reported on November 26 that a branch of the International Sleeping Car Company, with a capital of 27 million kuna, is recorded in the trade register at Agram. The aim of the company is to provide a service of sleeping, dining, and saloon cars on the Croatian State Railway system.

Increased Serbian Goods Rates

The Serbian State Railways have again increased the goods rates, now by 33 per cent., from October 15. The previous increase dated from January 1, 1942, as reported in THE RAILWAY GAZETTE of January 2, 1942 (page 27). In April the railway administration desired another increase, which then did not secure Government sanction, but has now been authorised. Exceptions to the general increase are for firewood (which is carried at the old rates), and grain, flour, ores, and coal, which are subject to 10 per cent. increases.

Dining Cars in India

In our June 5 issue (page 638) we recorded the withdrawal on May 1 last of all dining cars operating on the North-Western State Railway (India). The dining car service

on No. 7 up and No. 8 down Lahore-Karachi mails was reinstated as from November 1. Two cars are run on each train, one for Europeans and one for Hindus and Mohammedans.

From November 1, the Lahore-Karachi mails trains are restricted to first, second, and inter class only. From the same date, the Sind Express carries inter and third class only.

Bullock Carts in India

By reason of abnormally heavy military goods traffic, the North-Western Railway (India) has introduced bullock-cart carriage of short-haul goods between Amritsar and Lahore, through city booking agents. Railway freight rates are being charged, and railway receipts issued. If the experiment is successful, similar arrangements will be adopted in other areas served by the N.W.R. The cumulative saving in railway wagons is expected to be considerable.

Results of the Burma Evacuation

As a result of the Japanese invasion of Lower Burma, the Governor assumed all the powers and functions of the Burma Railway Board, which ceased to exist as from March 14, 1942. Thereafter, the railways were run under military aegis until early in May, when the last of the railway officers and some staff left for India. The administration was subsequently re-established as the Government of Burma, Railway Department, at Simla in India, the headquarters of that Government in September.

In place of the Chief Railway Commissioner and Burma Railway Board, the administration is under a Chief Executive Officer, assisted by heads of departments and a secretary. The Chief Executive Officer has powers equivalent to those of former Agents (or General Managers) and the principal work in hand is the settlement of staff pay and contractors' claims.

Meanwhile, however, arrangements are being made under Lt.-Colonel C. P. Brewitt, C.B.E., formerly Deputy Traffic Manager, Transportation, for the recruitment from Burma Railways personnel of units for operation, construction, and maintenance of railways, for use wherever required. The majority of the Gazetted Officers of the Burma Railways are either in these units or are posted to Indian railways, on special duty; some are on other works of national importance.

The Director and the Chief Engineer of the Burma-China Railway Construction and some of their staff are also in Simla, clearing up the affairs of that construction. It will be remembered that they were for some time marooned in the jungle by floods, and in September one party of officers and men was still isolated in the Chankkan Pass area, but it was hoped that they would get out and into India in October.

Tramways Compulsory in Canada

Tramway services must be continued in Canadian cities for the duration of the war, under a recent ruling of the Dominion Government. The Government has refused the requests of several cities to discontinue tramway services, and has required municipalities to restore services which had already been abandoned.

Christmas Travel in Canada

The Transport Controller, Dominion of Canada, recently issued a statement urging civilians to avoid travelling, except on business of national importance or otherwise urgent nature, between December 21 and 23, and December 28 and 30, inclusive, so as to leave railway facilities free for Service personnel on Christmas and New

Year leave. The statement points out the undesirability of overcrowding the trains, apart from the fact that, in any case, the railways will be handling a large amount of war freight which cannot be delayed by abnormal holiday passenger travel. The statement concludes by saying that traffic and operating officials of the Canadian railways are making the best possible preparation for handling the holiday traffic, and by asking the public to co-operate in every way.

Fuel Rationing in the U.S.A.

Nation-wide petrol rationing came into force in the U.S.A. on December 1. Rubber shortage is mainly responsible for its extension to the oil-producing and other Western States, so that "mileage rationing" may act as a rubber conservation measure. Petrol rationing in the 17 Eastern States dates from May 15 last.

Seat Allocation in the U.S.A.

An official statement from the Office of Defense Transportation recently said that the rationing of unreserved seats in trains is not being contemplated. One of the main reasons is that it would take such a large staff of employees all over the country to administer and enforce restrictions on travel. It is intended, however, to establish a system of priorities where necessary, so that those whose travel assists the war effort will be able to secure a seat. Such a system is already in force for air-line travel. Recent surveys indicate that 40 per cent. of all travel in the U.S.A. is for pleasure. It is hoped that voluntary restrictions on pleasure traffic will obviate the necessity for introducing more stringent arrangements.

Survey for Railway to Alaska

Since the early spring, a survey has been in hand for a most important railway to supplement the highway to Alaska. It follows Route "B" proposed by the Alaskan International Highway Commission, which is stated to be the shortest possible direct route between Prince George and the Alaska Railroad at Fairbanks, and is 1,300 miles long. It was selected not only on account of its directness, but also because it follows the "trench" between the Coast Range and the Rocky Mountains, where the winters are relatively moderate. During the construction of the Alcan Highway (see opposite page) temperatures varied from 35° F. below zero to 90° F. in the shade, and in the hot weather it was necessary for the men engaged on the work to wear gloves and head nets to protect them from insects. Construction of the proposed railway by the route adopted is said to be easier than by others. Some 400 miles of line have already been located.

Route "A" of the Alaskan International Highway Commission was from Vanderhoof to Big Delta, via Telegraph Creek and Whitehorse. The Alcan Highway eventually adopted the section between Whitehorse and Big Delta, but with a diversion through Boundary. Route "B" was from Prince George to Big Delta, via Watson Lake (near) and Dawson. Apparently the railway will have the modification of avoiding Big Delta, and passing Circle on its way to Fairbanks.

The extension of the northern Alberta railway system, as a route for a proposed United States railway to Fairbanks (Alaska) was urged in a statement issued on September 29 by Premier William Abernethy of Alberta. Presumably this scheme envisages approximately the same course as the Alcan Highway from the railroad at Dawson Creek to Watson Lake, or else (less likely) an extension from Peace River to Fort Nelson and on to Watson Lake.

The Alcan Highway

One of the many outstanding engineering achievements of the war has been the rapid construction of the military highway linking Alberta with Alaska, now known as the Alcan (Alaska-Canada) Highway. It was reported from Edmonton on September 29 that motor lorries had already traversed all sections (see our October 9 issue, page 354); and the United States Secretary of War announced on October 29 that the highway was open to lorry traffic for its entire length of 1,671 miles, and that munitions and material for the troops in Alaska was beginning to pass. Actually, the first large convoy—70 four-ton lorries—is said to have left Edmonton for Whitehorse on November 3, carrying stores for Canadian Air Force bases.

Although the need for a military highway linking the United States with Alaska was brought into renewed prominence by the outbreak of war in the Pacific, the matter has been under consideration for some years past, and a Canadian and American Joint Commission was appointed in 1939 to investigate and report upon the possibilities of a highway to the Yukon Territory and Alaska. This body, the Alaskan International Highway Commission, studied two routes, one running from Hazelton (near Vanderhoof) on the River Skeena, and the other from Prince George on the headwaters of the Fraser River. The Joint Defence Board of Canada and the U.S.A., which was established in 1940, rejected both these routes. The chief objection to the Hazelton route was its comparative proximity to the coast, which would make it relatively vulnerable to attack. Serious engineering difficulties were found in the route from Prince George.

The Joint Defence Board therefore pronounced in favour of a course which was much farther inland than the other two, so far as concerned the section in British Columbia. One of the factors which influenced this decision was the existence of a chain of airports recently established by the Canadian Government on a line running between Edmonton and Dawson in the Yukon Territory; most of these airports had to be furnished with supplies by air, and it was considered desirable to have them connected with the outer world by a highway.

The route finally selected begins at Dawson Creek railhead and runs through Fort St. John on the Peace River. It stays east of the mountains until it reaches the Yukon Border at Watson Lake, where there is an airfield. From here it crosses through the mountains to Whitehorse where it connects with the railway from Skagway. From Whitehorse it appears that the road takes a route near Dawson and into Alaska at Boundary. This place is the most northerly point on the Highway, as the course is then deflected south-westward to Big Delta on the Tanana River, where it links up with the 75-mile section of earlier roadway to Fairbanks (the capital of Alaska) and Circle on the Yukon River, and also with a road to the coast at Valdez. Fairbanks is the terminus of the Alaska Railroad to Anchorage and Seward. The railways of Alaska formed the subject of an illustrated article, with sketch map, in *THE RAILWAY GAZETTE* of October 24, 1941, page 408.

Work on the Highway was begun late last winter, when an aerial survey was made, and, under a U.S.A. authorisation of February, U.S.A. engineer troops and

construction equipment were taken over winter trials to Fort Nelson before the spring thaw in the first few days of April. Other troops began working out of Dawson Creek, the railhead in British Columbia, and from Whitehorse, in Yukon Territory. Formal agreement was reached between the U.S.A. and Canada on March 6 last for U.S.A. Army Engineers to undertake the work. Climatic conditions prevented actual construction until about June 1. There were only six points of access to the route by land. Two sections, each over 500 miles in length, were inaccessible except at their extremities. Engineer troops attacked forests, mountains, and swamps at all available points of access, bridged some 200 streams, laid thousands of culverts, and rapidly ditched and graded the two-way road. At the moment, it seems that parts are wide enough for single-line traffic only, but with adequate passing places.

The road built by the Corps of Engineers is a pioneer road for a permanent highway to be built by the U.S.A. Public Roads Administration under the agreement signed with Canada in March. Cuts and fills are made wide enough for the permanent road, and the grade has been given a high crown and surfaced with the best available local material. Bridges and culverts are built of timber cut in clearing the route. Pontoon bridges were used to get the construction forces and their equipment across the larger streams in advance of the construction of fixed bridges.

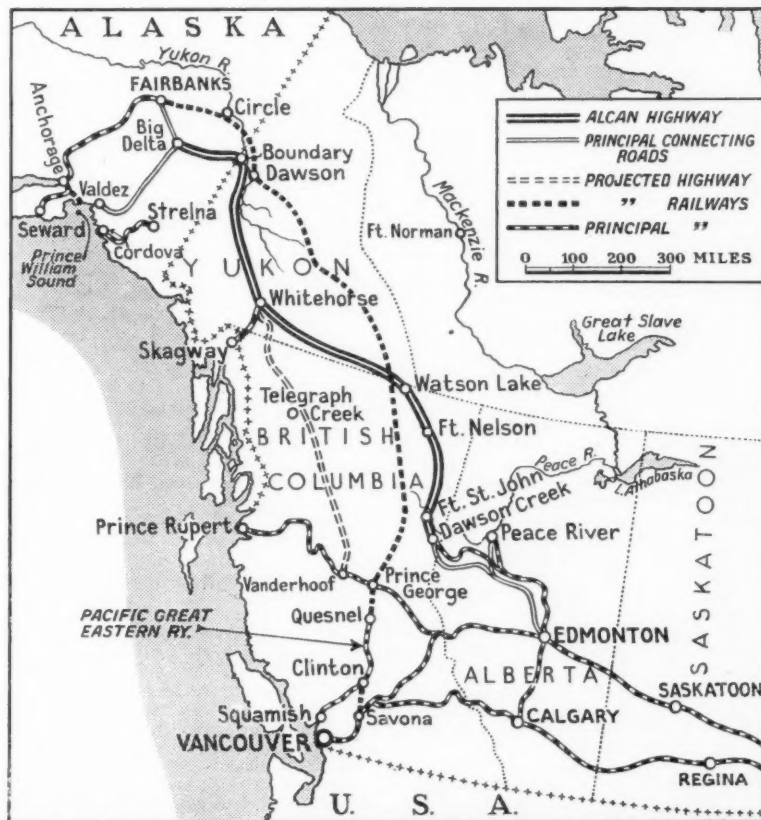
The American Colonel in charge of the work, as head of the Northwest Service Command, is responsible for all activities

of the United States Army in the Canadian provinces of British Columbia and Alberta and in the Canadian territories of Yukon and Mackenzie, together with operation, supply, and construction activities connected with the White Pass Yukon Railway and the Highway, and base installations in Fairbanks and Skagway, Alaska.

Management contracts for supervision of construction of the permanent highway were let by the U.S.A. Public Roads Administration early in the summer and contractors are understood to be at work at many points, using the pioneer road to bring in equipment and supplies. U.S.A. Engineer Corps units built most of the pioneer road, but in order to expedite completion, contractors engaged by the Public Roads Administration for work on the permanent road were given sections of the pioneer road to build in order to release troops for work on other parts of the road. In all, some 10,000 soldiers, and 2,000 civilian workmen under the direction of the P.R.A., are said to have been employed.

By such means, a road said to be mainly 24 ft. wide, for two-way lorry traffic, was completed and lightly gravelled in a working season of less than six months, through practically unknown terrain—a task which many thought would take five years, and which, even in May last, was estimated at 18 to 24 months. The exact location of the Highway has not yet been disclosed, for security reasons, but the accompanying sketch map shows the approximate course. Its formal opening to military traffic was celebrated on November 17.

(See also pages 566 and opposite)



Sketch map of the approximate route of the Alcan Highway and the proposed railway

Questions in Parliament

Liverpool Docks Report

Squadron-Leader E. Errington (Bootle—C.) on November 25 asked the Parliamentary Secretary to the Ministry of War Transport when the Report of Sir John Forster on the Liverpool docks would be ready; and whether he proposed to publish the evidence and recommendations.

Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, wrote in reply: I understand that Sir John Forster's report will shortly be presented to the Minister of War Transport and to the Minister of Labour and National Service. The evidence is confidential and will not be published. The question of publishing a summary of the recommendations will be considered when the report has been received.

A Liverpool Prosecution

Mr. W. Thorne (Plaistow—Lab.) on November 25 asked the Parliamentary Secretary to the Ministry of War Transport if he could make a statement in connection with the charges of theft and conspiracy involving £500,000 against Charles R. Clare, a company director and a Liverpool City Councillor, John H. Mills, senior naval inspector officer, and Miss Maud Tester; and if he had seen the statement made by the Government prosecuting counsel at the Liverpool assizes on Monday, November 2.

Mr. P. J. Noel-Baker: I have seen a report of the statement by prosecuting counsel to which Mr. Thorne refers. The matter is receiving the close attention of the Minister of War Transport, but I am not at present in a position to make a statement.

Mr. Thorne: As one of these men was a city councillor of Liverpool, can the Parliamentary Secretary say whether the city of Liverpool will call upon him to resign his seat?

Mr. Noel-Baker: I have no information on that point, and as this is to be the subject of appeal, I do not think I ought to say any more now.

Coastwise Shipping

Mr. H. Graham White (Birkenhead East—Lib.) on November 26 asked the Parliamentary Secretary to the Ministry of War Transport whether he contemplated the issue of a publication which would deal with the work and achievement of the coastwise shipping trade, on lines similar to that followed in the brochure, "Transport Goes to War."

Mr. P. J. Noel-Baker, in a written reply, stated: For reasons of security, it may not be possible to issue a publication about coastwise shipping on lines exactly similar to those followed in "Transport Goes to War," but I am making arrangements with the Minister of Information for a book of this sort to be written, and I hope it may be a worthy tribute to the arduous work of the men engaged in this service.

Concrete Sleepers

Mr. W. Thorne (Plaistow—Lab.) on November 26 asked the Parliamentary Secretary to the Ministry of War Transport if he could make a statement about the progress of concrete sleepers for railways; and what would be the approximate saving of timber if they were successful.

Mr. P. J. Noel-Baker, in a written answer, stated: Experiments are being conducted with 17 different types of concrete sleepers. Although it is not yet possible to indicate the full extent to which they may be used in substitution for timber, those at present laid on railway

tracks represent a saving of some 200,000 timber sleepers. In addition, more than 650,000 concrete sleepers have been laid in private and other sidings.

Road Fund Grants for Snow Ploughs

Sir Adam Maitland (Faversham—C.) on November 26 asked the Parliamentary Secretary to the Ministry of War Transport, how many local authorities had claimed grants from the Road Fund in respect of snow-ploughs purchased; and how many of the claims were not admitted.

Mr. Noel-Baker, in a written answer, stated: In the year 1941-42, 296 authorities claimed grants in respect of snow ploughs. Between April 1 last and October 31, 218 other authorities have applied for grants. Seven claims were not admitted because it was considered that sufficient plant was already available. Fifteen claims were not admitted because the ploughs had been purchased before grants were available.

Transport of Factory Workers

Mr. E. Granville (Eye—Ind.) on November 26 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware of the delay in obtaining satisfactory transport for the workers engaged in the factory, the name of which he had been informed; and whether the regional representatives of his Department had visited the works and settled this matter.

Mr. P. J. Noel-Baker in a written answer stated: I am advised that there has been some difficulty about the transport of workers to the factory to which Mr. Granville refers due to the fact that the workers live in a number of widely dispersed villages. The Regional Transport Commissioner held a meeting this week with the management and the bus operator to discuss arrangements for dealing with this traffic. Negotiations are continuing.

Mr. E. Granville (Eye—Ind.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware that lack of bus transport in an industrial town heavily engaged upon war production, the name of which he had been given privately, was causing hardship and dislocation of working shifts; and what action he proposed to take to remedy this.

Mr. P. J. Noel-Baker in a written answer stated: An offer had been made by the Regional Transport Commissioner to the management of the factory in question to provide two new bus services and to expand two existing services. This offer is, of course, subject to a satisfactory agreement about the payment to be made for these facilities.

Traffic Light Signals

Sir Leonard Lyle (Bournemouth—C.) on December 1 asked the Parliamentary Secretary to the Ministry of War Transport in how many cases in the country where traffic lights had been put out of commission policemen had had to be restored to deal with the traffic.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) in a written reply stated: I regret that the information which Sir Leonard Lyle desires is not available, I may, however, remind him that traffic-light signals are discontinued only where they are not at present necessary for purposes of traffic control or reasons of safety.

Brighton & Hove Sunday Bus Services

Lt.-Colonel A. A. H. Marlowe (Brighton—C.) on December 1 asked the Parliamentary Secretary to the Ministry of War Transport, whether consideration had now

been given to the representations made to him concerning the ban on Sunday morning bus services in Brighton and Hove; and whether the scheme would be modified so as to provide transport for those who wished to attend divine service at their customary places of worship.

Mr. Noel-Baker in a written answer stated: The decision to curtail road transport services on Sundays was taken with great reluctance, and was due to the paramount need to save fuel and rubber, to give relief to the operating staff, and to afford proper opportunity for the overhaul and maintenance of vehicles. The Minister of War Transport has given consideration to the representations he has received from Brighton and Hove, but has reached the conclusion that he would not be justified in asking the Regional Transport Commissioner to arrange for the provision of omnibus services as suggested.

Rationalisation Schemes

Mr. John Parker (Romford—Lab.) on December 1 asked the Parliamentary Secretary to the Ministry of War Transport how many rationalisation schemes for retail coal delivery had been drawn up in consultation with, or approved by, his Ministry and were now in operation.

Mr. Noel-Baker stated in a written answer: Mr. Parker is, no doubt, familiar with the general measures which have been taken under the House Coal Emergency Scheme in order to eliminate unnecessary deliveries of coal. In addition, more than 20 rationalisation schemes of various types have been drawn up in consultation with the Mines Department, and are either in operation or in active preparation in various parts of the country. In the light of the experience thus gained, the Minister of War Transport is now considering, in consultation with the Minister of Fuel & Power, what further measures of rationalisation can be undertaken. In the meantime, issues of motor fuel for retail deliveries of coal are being restricted more closely, in order to prevent the unnecessary use of fuel and rubber.

Railway Lost Property

Sir Robert Rankin (Liverpool, Kirkdale—C.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport whether, in view of the fact that lost property on the railways now amounted to 700,000 items a year and the work involved meant a loss to them of at least 175,000 man-hours, he would consider the advisability of instructing the railways to display appropriate warnings to the travelling public.

Mr. Noel-Baker: The railways already do a good deal to carry out Sir Robert Rankin's proposal by putting advertisements in the press, and by displaying posters at railway stations. Further advertisements and posters for the purpose are now being prepared. I am grateful to Sir Robert Rankin for drawing attention to the waste of skilled manpower that is involved, and to the extra strain that is thus needlessly imposed on the overburdened railway staff.

Road Accidents

Mr. Ben Riley (Dewsbury—Lab.) on November 26 asked the Parliamentary Secretary to the Ministry of War Transport whether he could give the full number of fatal and non-fatal accidents on the roads in Great Britain for the months of October, 1942 and 1941 respectively; and whether he could state the number of licensed vehicles for each of the respective months.

Mr. P. J. Noel-Baker wrote in reply: In October, 1941, 857 persons were killed

in road accidents, and 17,650 were injured. The figures for October, 1942, were 697 killed and 13,218 injured. It has not been the practice since the war began to publish the numbers of vehicles which are licensed.

Sir Frank Sanderson (Ealing—C.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport whether he was now in a position to state the class of traffic which was primarily responsible for the number of deaths, particularly of young children, from road accidents; and whether he was able to give any information in this regard which would be helpful to the general community.

Mr. Noel-Baker: I regret that I am unable at present to add to the answer I gave to Sir Frank Sanderson on November 18 as the necessary returns have not been made since the outbreak of the war.

Road Accidents in Rural Areas

Sir Percy Harris (Bethnal Green, South-west—Lib.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport, whether, in view of the alarming number of road accidents in rural areas, he would consider bringing inside the speed limit all villages including those now excluded as not coming within the definition of built-up areas because of the absence of street lamps.

Mr. Noel-Baker stated in a written reply: I am afraid there would be great practical difficulties in making and enforcing a general Order of the kind which Sir Percy Harris suggests. I am glad to tell him, however, that the speed limit has been applied by Orders under the Road Traffic Act, 1934, to many miles of roads without lamps, including the roads through many villages. I am prepared to consider any application for further restriction which the authorities who are conversant with local conditions may make. If Sir Percy Harris has any special cases in mind in which he thinks that such application should be made, I will be glad to make inquiries.

Bus Stopping Places in London

Sir Reginald Clarry (Newport—C.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport if his attention had been called to the inconvenience and possible danger to which the public were exposed at the prescribed bus stops in London by the bus not drawing up with the landing platform reasonably near to the head of the queue, which often caused the queue to break into an uncontrolled scramble; and whether some improvement in the present arrangements could be made.

Mr. P. J. Noel-Baker: The London Passenger Transport Board has issued an instruction to drivers that they should stop their buses at the head of the queue, and I think it right to say that, in general, the drivers have carefully observed this instruction. Sometimes, however, traffic or other conditions may make it impossible for them to do so, and I am confident that on such occasions the public would desire to make due allowance for their difficulties. At a number of important points officials are stationed during the busy hours to ensure orderly behaviour, but they are seldom called upon to take action.

Co-Ordination of Passenger Transport

Sir John Jarvis (Guildford—C.) on December 2 asked the Parliamentary Secretary to the Ministry of War Transport whether he would take steps to see that wherever practicable, buses began and ended their journeys in or near railway station yards and thus saved inconvenience to the public travelling by railway and bus.

Mr. Noel-Baker stated in a written answer: The Regional Transport Commissioners arrange for the co-ordination of passenger transport services by road and by rail and, wherever practicable, they give instructions that buses shall stop at or near railway stations. I have examined the two cases to which Sir John Jarvis has drawn my attention. Arrangements will shortly be completed for the Guildford-Cranleigh bus service to pick up passengers in the station yard at Guildford. On the Godalming-Dunsford service, I am not satisfied that there is adequate justification for the additional mileage which would be involved, as, if the buses went to the railway station, their route would be extended by half-a-mile.

Air Transport in the Future

The Hon. W. L. Runciman, A.F.C., Director-General of British Overseas Airways Corporation, at a luncheon of the Institute of Transport held in London on December 1, said that the war, particularly since America joined in, had focussed much public attention on air transport and widely divergent views were held and expressed about what it could really do. All agreed that it could do a great deal and that there would be an immense extension of the use of air transport after the war. What form was this extension likely to take?

The whole of the United States domestic air lines, which formed the most highly and economically organised system of air transport in existence before the war carried in the year 1940 rather under 120,000,000 ton-miles. A single moderate-sized cargo vessel in a single peacetime year, carried three times as much. Moreover, the cost per ton mile for the air lines was about 30d., and the similar cost for the ship per ton-mile before the war was round about 1/30th of one penny. It seemed, therefore, unlikely that for some time to come air transport would replace the cargo-carrying ship, or for that matter the goods train, particularly where low grade freight was concerned.

Air transport had an obvious advantage where people or things needed to be moved swiftly over long distances. Mails were the principal example of this, and the lead given by the British Empire in the Empire mail scheme, by which all first class mail travelled by air was likely to be almost universally followed where distances were involved greater than could be covered overnight by surface transport.

Passenger traffic was rather different. Here comfort and convenience came in as well as speed. Air transport was already, before the war, beginning to cater for quite a lot of long-distance passenger traffic which previously went by rail or sea or not at all. Passenger traffic was sensitive to the prices charged and so long as costs were expressed in terms of money it was likely to remain so. The possibility of offering air transport to the public at rates not more than say twice the cost of the fares charged by surface transport on most routes still depended on the amount of subsidy open or disguised which the nations of the world were prepared to pay to air transport as a whole.

On many routes in Europe air fares before the war were quoted which, when the gain in convenience and time was taken into account (and sometimes even when they were not), were more favourable to the traveller than the corresponding rail or rail and ship fares. These air fares were in

most cases only possible on the basis of a subsidy though certain routes such as London/Paris involving an inconvenient rail and sea journey, and used by many people to whom price was relatively unimportant, might hold their own with no outside aid. There was good reason to believe that with recent improvements in technique and material there would be more such routes wherever the density of traffic permitted concentrated operation.

Mr. Runciman said he would be surprised if long distance rail travel of the more luxurious sort survived many more years. Here again, the border line was likely to come at the distance which could be easily covered outside the normal working hours of the day, though price would obviously enter it. Short-haul goods traffic would still go by road because it would be a long time before the gain in time by air offset the loss of time of trans-shipment from a van or lorry to an aircraft and back again, and it would be longer still before air transport habitually collected or delivered goods at the door.

Some would say that all this meant merely that the air was going to skim the cream of everybody else's traffic. He did not believe this to be true. The railways would probably keep most of the third class domestic traffic in nearly every country where distances were not very great. Generally, so far as air transport stimulated the desire for travel, and by virtue of its greater speed enabled people to make journeys who would otherwise not have time to do so, transport as a whole would benefit unless the universal experience of more than one generation was to be belied.

L.N.E.R. Clyde Steamer "Lucy Ashton"

A remarkably fine performance has been put up by the 54-year-old L.N.E.R. Clyde paddle-steamer *Lucy Ashton*, or the "Little Old Lady," as she is known to Clydesiders. Looking grim in her wartime grey paint, as if conscious of the serious job she has to do, she has maintained single-handed, for over three years, the L.N.E.R. Clyde Coast service; and, during that period, she has not missed a sailing through any defect in her machinery or construction—a tribute to Scottish shipbuilding.

The *Lucy Ashton* leaves her home port at Craigendoran at 6.30 a.m. and sails throughout each weekday almost continually until 7.45 p.m.; her longest break is of 1½ hr. for the purpose of coaling and taking stores aboard. In setting up this record, she has covered some 94,000 nautical miles and made 10,000 calls at the various piers.

She was built at Rutherglen by T. B. Seath & Company for the North British Steam Packet Company, and was launched in 1888. During her long service she has carried many millions of holidaymakers and regular travellers across the Firth of Clyde, and for many years she provided exclusively the regular service between Craigendoran, the Gareloch piers, and Greenock.

The Master, Captain D. Campbell, the Engineer, Mr. C. McLean, and the crew take a great pride in maintaining this vessel in good trim. Their duties are not confined to the sailings on weekdays, as on Sundays they undertake all maintenance work, painting, and other jobs which have to be performed. Mr. McLean, it may be mentioned, was Chief Engineer of the *Waverley* (a sister ship of the *Lucy Ashton*) when she was lost in action at Dunkirk.

Notes and News

Permanent Way Institution.—A meeting of the London Section will take place on Saturday, December 19, at 2.30 p.m. at the Southern Railway Ambulance Room, Wimbledon Station, S.E.19, when a lecture will be given by Mr. Eric T. Hutt on "Concrete Sleepers."

Agreed Charges.—Fifty-six more applications for the approval of agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Railway Rates Tribunal. Notices of objection were to be filed with the Registrar at Wellington House, 125-130, Strand, London, on or before December 8.

Ministry of Fuel & Power Vacancies.—Coal Traffic Inspectors are required by the Ministry of Fuel & Power to deal with delays in the clearance of coal wagons in the Peterborough, Cambridge, and Tunbridge Wells areas. Applicants should have railway experience, preferably in the areas named. Details are given in our Official Notices at page 591.

Institute of Metals.—Professor G. P. Thomson, D.Sc., F.R.S., has accepted the invitation of the Council of the Institute of Metals to deliver the 1943 May Lecture. His subject will be "Electron Diffraction." His father, the late Sir J. J. Thomson, O.M., F.R.S., was also a May Lecturer, and his discourse—in 1915—was on "The Conduction of Electricity through Metals."

Chilean Tramway Nationalisation.—A Reuters message from Santiago says that a Bill to nationalise the tramways of Valparaiso and Santiago (which are controlled by U.S.A. interests) has been submitted to the Chilean Congress. The Government envisages establishing a State enterprise, with a capital of 150,000,000 pesos, to take over the properties from the present companies.

Midland Railway Co. of Western Australia Ltd.—The directors have authorised a final payment of interest on the second mortgage cumulative income debenture stock on account of the year ended June 30, 1942, at the rate of 3 per cent., less income tax at 10s. in the £1, payable January 1, 1943, making with the interim payment of 2 per cent. on July 1, 1942, 5 per cent. for the year.

Road Accidents in October, 1942.—The return issued by the Minister of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of October last shows 697 deaths (compared with 857 in October, 1941), 3,369 seriously injured (compared with 4,376 in October, 1941), and 9,849 slightly injured (compared with 13,274 in October, 1941).

Swedish Commercial Aviation Schemes.—Federiakiebolaget Svenska Lloyd (share capital Kr. 9,460,000), which before the war operated regular fast shipping services between London and Newcastle-on-Tyne, and Gothenburg, owns a Swedish Government concession for the operation of regular air services between Gothenburg and London, and the company now has applied for a further licence for the operation of such services after the war with seaplanes. Aktiebolaget Svenska Amerika Linje, with a share capital of Kr. 24,000,000, recently founded a subsidiary, named the Swedish-American Air Line, for the operation of an air service between Sweden and the United States; the initial share capital of the new company

s Kr. 5,000. No application has yet been made, however, for the necessary Government concession.

Technical Clerk with Railway Experience wanted.—A national organisation is seeking a technical clerk experienced in handling a large fleet of railway wagons. For details see Official Notices on opposite page.

Madrid Metropolitan Railway.—Reuters states, quoting the official German news agency from Madrid, that, at an extraordinary general meeting, the Madrid Metropolitan Railway Company, which has a capital of 133,000,000 pesetas, decided to increase the latter by 65,000,000 pesetas. For this purpose the company is to issue new shares with a nominal value of 500 pesetas, which will be offered to the present shareholders in the ratio of one new share for three old shares.

Railway Benevolent Institution Collection.—A New Year's Day Collection in aid of the Railway Benevolent Institution will be made on January 1, 1943, at all railway stations in Great Britain and Ireland. The number of railway employees who became members of this year's casualty fund was 171,206, and assistance has been rendered to 118 widows of men killed, 468 widows of men dying from illness, and 4,835 men accidentally injured, making a total of 5,421 cases relieved, equal to one in every 32 contributors.

Canadian National Railways.—Gross earnings during October last were \$36,002,000, an increase of \$7,241,490 over September, 1942, and operating expenses were \$27,098,612, an advance of \$4,376,831, leaving net earnings \$2,864,658 higher at \$8,903,387. Aggregate gross earnings for the ten months from January 1, 1942, were \$306,829,000, an increase of \$57,756,479, as compared with the similar period of 1941, and net earnings of \$71,664,362 showed an improvement of \$17,036,306.

Argentine Great Western Railway Co. Ltd.—Under the working agreement this company received from the Buenos Ayres & Pacific Railway Co. Ltd. and distributed in respect of the year ended June 30, 1942, £136,000 in interest on the first and second debenture stocks, paid January 1 and July 1, 1942. In addition the Pacific Company has during the year under review paid to the Great Western Company £136,300, and since June 30, 1942, a further sum of £136,300. Distribution of these two sums brings the arrears of interest on the 5 per cent. debenture stock up to October 1, 1937. The moratorium period has been extended to June 30, 1943. Paying goods and livestock traffic during the year under review amounted to 2,507,352 tons (2,395,142 tons).

Red Cross Penny-a-Week Fund.—The fund authorities state that 41,000 employers in England and Wales now are affording facilities for their workers, numbering approximately 6,000,000, to make collective contributions to the Red Cross Penny-a-Week Fund. Thanks to their ready co-operation, the Red Cross & St. John is receiving an income of nearly £30,000 a week from this source. In addition, house-to-house collections bring in an additional £20,000 a week. In view of the urgent need for additional revenue expressed recently by Lord Iliffe, Chairman of the Duke of Gloucester's Red Cross & St. John Appeal, the authorities request that all employers whose workers are not contributing already should bring the scheme to their notice and provide the

necessary facilities for collection. Full details of the scheme will be sent gladly to those interested on application to the Red Cross Penny-a-Week Fund, Bramshill, Eversley, near Basingstoke, Hants.

Indian Post-War Industry.—Reuters states that plans for India's post-war industrial reconstruction have advanced further with the creation by the Government of India of advisory panels for industrialists in Bombay, Calcutta and Madras. The panels will advise how demands on industry can be met, whether

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices	
			Dec. 4, 1942	Rise Fall
G.W.R.				
Cons. Ord.	43½	30½	57	—
5% Con. Pref.	109½	83½	112½	—
5% Red. Pref. (1950) ..	105½	96½	107	—
5% R. Charge	129½	116	130½	—
5% Cons. Guar.	128	110½	126½	—
4% Deb.	113½	102½	114	—
4½% Deb.	115	105½	114½	—
4½% Deb.	121½	112	119½	—
5% Deb.	132	122	131	—
2½ Deb.	70	62½	75½	—
L.M.S.R.				
Ord.	17½	11	26½	—
4% Pref. (1923)	53	33½	62	—
4% Pref.	68½	48½	75½	—
5% Red. Pref. (1955) ..	97½	77	102½	—
4% Guar.	100	85½	101½	—
4% Deb.	105½	97	108½	—
5% Red. Deb. (1952) ..	110½	106½	107	—
L.N.E.R.				
5% Pref. Ord.	3½	2½	8½	—
Def. Ord.	2	1½	4½	—
4% First Pref.	52½	33	60½	—
4% Second Pref.	19½	10	30	—
5% Red. Pref. (1955) ..	79½	52	95	—
4% First Guar.	90½	74½	96	—
4% Second Guar.	80½	59	88	—
3% Deb.	79½	68½	83	—
4% Deb.	104	91½	106	—
5% Red. Deb. (1947) ..	106	102½	103	—
4½ Sinking Fund Red. Deb.	103½	99½	104½	—
SOUTHERN				
Pref. Ord.	65½	43½	75	—
Def. Ord.	15½	9	22	—
5% Pref.	107	77½	110	—
5% Red. Pref. (1964) ..	107	89½	109½	—
5% Guar. Pref.	128	111	126½	—
5% Red. Guar. Pref. (1957) ..	114½	107½	112½	—
4% Deb.	112	102½	112½	—
5% Deb.	130½	119	130½	—
4% Red. Deb. (1962-67) ..	108½	102	109½	—
4% Red. Deb. (1970-80) ..	108½	102½	109½	—
FORTH BRIDGE				
4% Deb.	99½	90½	107	—
4% Guar.	99½	85½	103½	—
L.P.T.B.				
4% "A"	120½	109½	117½	—
5% "A"	130½	115½	127½	—
4% "T.F.A."	103½	99½	100½	—
5% "B"	117	102	116½	—
5% "C"	46½	28½	55	—
MERSEY				
Ord.	24½	19½	26	—
3% Perp. Pref.	58	51½	59	—
4% Perp. Deb.	100	90	99	—
3% Perp. Deb.	73½	63	78	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	27½	—
G. SOUTHERN				
Ord.	14½	5	20	—
Pref.	17	10	25½	—
Guar.	44	16	49	—
Deb.	61	42	68	—

OFFICIAL NOTICES

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

new plants can be erected, and how expansion of existing plants can be carried out. It is explained that industry must find the capital but that the Government will undertake the responsibility of arranging imports, building plants, priorities, and shipping.

Italian Railway Development, 1922-42.—In a recent financial survey of the development of the Italian railways during the past twenty years it was stated that the financial outlay for their electrification totalled 3,650,000,000 lire, and that the expenditure on new rolling stock amounted to 4,700,000,000 lire. New station buildings, dwellings for staff, and similar expenditures had absorbed 10,150,000,000 lire.

Strasbourg Tramways.—The Strasbourg Tramways Company has changed its name to the Strasbourg Transport Company (Strassburger Verkehrs-Betriebe A.G., or S.V.B.). It reports a considerable expansion of traffic in 1941. At the company's recent general meeting the conversion of the preference capital of RM. 8,620,000 into ordinary capital was approved, and the withdrawal of the cash bonus stock owned wholly by the Strasbourg municipality was decided on; the indemnity to be paid to the municipality amounts to RM. 100,000.

Institute of Transport "Brains Trust" Meeting.—At the October meeting at Derby, members of the East Midlands Section of the Institute of Transport were able to put questions to a "brains trust" consisting of Messrs. B. England, J. T. Evans, E. L. Taylor, J. W. Watkins, and W. Donaldson Wright, with Mr. J. H. Stirk as Questionmaster. The problems tackled by the trust covered many subjects, including the use of red as a danger signal, the wheel formation of buses, the substitution of trolleybuses for trams, and nationalisation of transport.

Northern Ireland Road Transport Board.—The accounts of the Northern Ireland Road Transport Board for the year to September 30 last show an operating profit of £255,610, after allocating £175,000 to depreciation and deferred maintenance and providing for war damage insurance. The available surplus is £260,061. From this sum £126,533 is appropriated for interest on loans issued under the Road & Railway Transport Act (Northern Ireland), 1935, and £7,463 for redemption of "A" stock. Superannuation & pension reserve receives £5,000, and general reserve £10,000. Taxation provision is £25,000. These appropriations total £173,996, leaving £86,065, which reduces the debit balance carried forward to £338,511. Traffic receipts were £2,916,658 (against £2,085,766 in 1940-41)

THE MINISTRY OF FUEL AND POWER require Coal Traffic Inspectors to deal with delays in the clearance of coal wagons in the Peterborough, Cambridge and Tunbridge Wells areas. Applicants should have railway experience, preferably in the areas given.

Apply Ministry of Fuel and Power, Establishment Branch, Millbank, Westminster, S.W.1, stating qualifications.

NATIONAL Organisation require a Technical Clerk over 40 with a thorough knowledge of railway working and experienced in the handling of a large fleet of railway wagons. Applicants must be conversant with all specifications issued by the R.C.H., must have wide experience in wagon overhauls and repairs and the ability to check the accounts for such work. Reply giving age, full details of experience, and salary required to Box No. 812, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

and expenditure (including depreciation and deferred maintenance) £2,661,048 (against £1,798,972).

Bahia Blanca & North Western Railway Co. Ltd.—The board reports that the guaranteed rental of £440,000 due from the Buenos Ayres Great Southern Railway Co. Ltd., in respect of the year ended June 30, 1942, has been received, and the £98,000 interest on the 4 per cent. first debenture stock, the £135,000 interest on the 4½ per cent. second debenture stock and the dividend of £207,000 on the 4½ per cent. guaranteed stock have been duly paid. The provision of £10,350 for N.D.C. is recoverable from the working company, which has also paid the London office expenses, including directors' fees (£3,762).

Canadian Railway Revenues.—The Dominion Bureau of Statistics reports that Canadian railways had during July this year the highest revenue for that month on record, and a total exceeded only by that of October, 1928. The earnings for July were \$57,529,040, an increase of \$12,087,104 over July, 1941, and only \$4,341,960 less than for October, 1928. Operating expenses were \$42,004,198 in July, against \$35,248,142 in the same month last year, and the operating income increased to \$10,581,519 from \$7,261,660. The monthly payroll increased from \$20,989,616 in July last year to \$24,162,507, or by about 15 per cent. The number of employees increased by 4.7 per cent., to 156,145, compared with July, 1941.

Conversion of London Transport Stock.—The London Passenger Transport Board has announced that, of £12,583,000 London Transport 4½ per cent. "T.F.A." stock, the holders of about £9,600,000 of Stock, or 76 per cent. of the total, have elected to exchange into the new London Transport 3 per cent. guaranteed stock 1967-72 on the terms of the recent offer. The closing date was November 18. The balance of the authorised issue of £12,905,641 London Transport 3 per cent. guaranteed stock will be issued for cash, in accordance with the arrangements already made, and the unconverted London Transport 4½ per cent. "T.F.A." stock will be repaid in cash on January 1, 1943. Details of the proposed conversion were given in our October 2 issue, page 313.

Blue Coach Service (Bedford) Limited.—A resolution for the voluntary winding up of this company was passed as a special resolution at an extraordinary general meeting on July 30. Notice is now given that pursuant to Section 236 of the Companies Act, 1929, a general meeting of the members of the company will be held at 88, Kingsway, London, on December 29 at noon to receive the report of the liquidators, and also to consider and if thought fit pass the following resolution as an extraordinary resolution of the company:—

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48th Annual Edition, 1942-43

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"That the liquidators be and they are hereby authorised to hand over all the books, papers, and documents of the company to the City of Oxford Motor Services Limited."

North-Western Region Buses.—In connection with recent discussions between bus operators and the North-Western Regional Transport Commissioner, it was stated that there are five large private companies and 33 municipally-owned transport undertakings working in the region.

L.M.S.R. Extension of Time Order.—The Minister of War Transport has made the London Midland & Scottish Railway (Extension of Time) Order, 1942 (S.R. & O. 1942, No. 2340), extending by three years the time limited by:—Section 6 of the L.M.S.R. Act, 1939, for the compulsory purchase of lands at Wheathampstead, Harpenden, and Nottingham; (2) Section 19 of the Act of 1939 for the completion of the railway in Hazel Grove and Bramhall, authorised to be constructed by Section of the Act of 1934; (3) Section 22 of the Act of 1939 for the compulsory purchase of lands (a) at Alderley Edge and Wilmslow authorised to be acquired by the Act of 1930, (b) in St. Pancras authorised to be acquired by the Act of 1933, and (c) at Abergele authorised to be acquired by the Act of 1936.

Post-War Exports.—Mr. Harcourt Johnstone, Secretary, Department of Overseas Trade, said recently that it was probable that before the end of the war we should have spent our foreign investments to the tune of £150,000,000 a year at least, and, taking into account the £50,000,000 a year debit balance in 1938, it would appear that we should need to do at least £200,000,000 a year of additional export trade to balance our account. In post-war economic reconstruction our export industry must be prepared to be adaptable as never before to consumer demand. The world was demanding far greater variety and much more rapid change in its supply of goods. All industries which would not march with the time would suffer, but if they adapted themselves to modern conditions they had nothing to fear. New industries had unlimited possibilities before them.

Contracts and Tenders

The Peruvian Corporation Limited has placed a contract with John I. Thornycroft & Co. Ltd. for marine-engine spares for the Paita Railway of Peru.

Railway Stock Market

In the absence of improvement in Stock Exchange business, security values continued to show a reactionary trend, but declines on balance were again very small in most sections. Sentiment was still assisted by the confidence indicated by the moderate amount of selling in evidence. The fact that demand has been on a limited scale reflects the prevailing disposition to await the progress of war developments in North Africa. Moreover, Sir William Beveridge's report on social security, and other factors, tended to draw widespread attention to the changed conditions and difficulties that may have to be met in the post-war period.

The strong demand which was experienced a few weeks ago for all classes of securities was in a large measure a reflection of the optimistic market views then current as to post-war prospects. There can, however, be no doubt that home railway junior stocks are relatively undervalued, bearing in mind all factors and the fact that they offer yields twice as large as the average on leading industrial shares. As has been pointed out in these notes on numerous occasions, there is no other group of equity securities whose dividends during the war period are as clearly defined as in the case of home railway junior stocks. It is true that the prevailing

view is that after the war there are likely to be important steps for the reorganisation of transport, but it should not be overlooked that developments of a similar nature may be proposed in respect of other leading industries. In the case of the railways it seems probable that the financial agreement with the Government, which is scheduled to run for at least one year after the war, will remain in force until questions affecting post-war reorganisation have been finally settled. All points considered, it would, therefore, appear that from the long-term angle, which tends to have a very important part in influencing Stock Exchange values, and also from the short-term viewpoint of current yields, home railway junior stocks have considerable attractions. The belief prevails that in any post-war rearrangement, the railways and their stockholders can expect to receive equitable treatment, and that any development of this kind would probably be based more on the revenue figures of the Railways Act of 1921 than on the existing financial agreement with the Government. Following the turn of the year it appears that increasing interest will attach to the dividend announcements of the main-line companies, expected in February. There is no reason why the payments should not be at the same levels as those for 1941; in some instances fractionally higher payments

may be forthcoming, according to some views, but on the other hand, this seems unlikely unless there were considered to be good grounds for expecting any increases in the rates of dividend to be maintained in the future.

In common with other sections of the Stock Exchange, home railway stocks have been less active, but in the absence of much selling, declines in the junior stocks were moderate. Moreover, prior charges remained firmly held and were well maintained in price. At the time of writing, Great Western ordinary has moved back to 56½, which compared with 57½ a week ago. L.M.S.R. ordinary eased from 26½ to 26¼, the senior preference from 75½ to 75, and the 1923 preference from 62½ to 62. L.N.E.R. first preference was slightly lower at 60, and at 30 the second preference lost part of its recent rise. Southern preferred reacted from 75 to 74½ and the deferred from 22½ to 21½. London Transport "C" was 54½, compared with 55½.

After their recent sharp decline, there was a partial rally in Argentine railway issues, particularly the prior charges, sentiment as to which was assisted by the interest payments announced by Central Argentine, B.A. & Pacific, and Argentine Great Western. Argentine North Eastern "B" debentures were higher. A further rise was shown in United of Havana debentures.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open 1941-42	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to date			Shares or Stock	Prices				
				Total this year	Inc. or Dec. compared with 1941		Totals		Increase or Decrease		Highest 1941	Lowest 1941	Dec. 4, 1942	Yield % (See Note)	
							This Year	Last Year							
South & Central America	Antofagasta (Chili) & Bolivia	834	29.11.42	24,600	+ 1,180	48	1,028,070	939,070	+ 89,000	Ord. Stk.	10½	3½	10	Nil	
	Argentine North Eastern	753	28.11.42	12,504	+ 2,544	22	296,424	256,356	+ 40,068	Ord. Stk.	6½	—	5	Nil	
	Bolivar	174	Oct., 1942	6,430	+ 2,780	44	47,139	38,504	+ 8,635	6 p.c. Deb.	5	2½	18½	Nil	
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	19½	Nil	
	Buenos Ayres & Pacific	2,807	28.11.42	100,800	+ 18,000	22	1,915,620	1,704,900	+ 210,720	Ord. Stk.	7½	1½	6	Nil	
	Buenos Ayres Great Southern	5,080	28.11.42	176,280	+ 13,800	22	3,030,420	2,819,240	+ 201,180	Ord. Stk.	23	31	10½	Nil	
	Buenos Ayres Western	1,930	28.11.42	62,520	+ 6,420	22	1,124,580	1,094,280	+ 30,300	"	9	21	11½	Nil	
	Central Argentine	3,700	28.11.42	142,209	+ 49,464	22	2,706,780	2,374,959	+ 331,821	"	8½	2½	7½	Nil	
	Do.	—	—	—	—	—	—	—	—	Dfd.	9½	—	3½	Nil	
	Cent. Uruguay of M. Video	972	28.11.42	26,463	+ 3,408	22	477,268	495,123	- 17,855	Ord. Stk.	9½	1	5½	Nil	
	Costa Rica	262	Oct., 1942	13,131	+ 9,031	13	51,375	91,158	- 39,783	Stk.	15½	11½	14	Nil	
	Dorada	70	Oct., 1942	19,470	+ 9,250	44	157,175	122,970	+ 34,205	1 Mt. Db.	97	97	88½	Nil	
	Entre Rios	808	28.11.42	19,380	+ 4,536	22	403,368	373,944	+ 29,424	Ord. Stk.	4	1	7	Nil	
	Great Western of Brazil	1,030	28.11.42	18,300	+ 1,820	48	546,900	477,900	+ 69,000	Ord. Sh.	11	1	28/9	Nil	
	International of Cl. Amer.	794	Oct., 1942	\$439,491	+ \$30,010	42	\$5,072,794	\$4,666,581	+ \$406,213	"	—	—	—	Nil	
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	—	1st Pref.	—	6d.	2	Nil
	La Guaira & Caracas	22½	Nov., 1942	8,885	+ 1,960	48	80,810	72,370	+ 8,440	5 p.c. Deb.	—	—	80	6½	
	Leopoldina	1,918	14.11.42	30,288	+ 3,259	20	1,390,255	1,209,568	+ 180,687	Ord. Stk.	4	—	5½	Nil	
	Mexican	483	30.11.42	ps. 407,800	+ ps. 24,300	22	ps. 6,261,900	ps. 6,554,800	- ps. 292,900	"	—	—	—	Nil	
Canada	Midland of Uruguay	319	Sept., 1942	11,895	+ 1,899	9	35,002	41,274	- 6,272	"	—	—	—	Nil	
	Nitrate	382	30.11.42	5,497	+ 1,390	48	177,555	132,903	+ 44,652	Ord. Sh.	66½	1½	72.6	3½	
	Paraguay Central	274	27.11.42	\$3,866,000	+ \$466,000	22	\$80,654,000	\$76,166,000	+ \$4,488,000	Pr. Li. Stk.	43	29	51½	11½	
	Peruvian Corporation	1,059	Nov., 1942	77,634	+ 14,137	19	414,622	355,843	+ 58,779	Pref.	6½	1½	14½	Nil	
	Salvador	100	Sept., 1942	€ 55,000	+ € 10,000	14	€ 183,000	€ 156,172	+ € 26,828	Ord. Stk.	52	24½	57½	3½	
	San Paulo	153½	22.11.42	36,371	+ 196	48	1,732,045	1,716,819	+ 15,226	Ord. Sh.	1	6½	2	Nil	
	Taltal	160	Oct., 1942	3,180	+ 2,420	17	19,840	21,990	- 2,150	Ord. Stk.	2½	—	7½	Nil	
	United of Havana	1,346	28.11.42	57,072	+ 37,757	21	901,366	415,423	+ 485,943	"	—	—	—	Nil	
	Uruguay Northern	73	Sept., 1942	1,059	+ 180	14	3,257	3,929	- 672	"	—	—	—	Nil	
	Canadian Pacific	17,039	30.11.42	1,437,600	+ 268,000	48	46,468,200	40,048,400	+ 6,419,800	Ord. Stk.	13½	7½	16	Nil	
India	Barsi Light	202	Oct., 1942	13,747	+ 255	30	106,747	101,002	+ 5,745	—	—	—	—	—	
	Bengal & North Western	2,090	Oct., 1942	184,425	+ 78,594	4	184,425	263,019	- 78,594	Ord. Stk.	345	253	370½	5½	
	Bengal-Nagpur	3,267	20.6.42	284,100	+ 31,301	11	2,271,325	2,107,876	+ 163,449	"	101	95½	100½	7½	
	Madras & Southern Mahratta	2,939	31.7.42	341,625	+ 133,549	18	2,714,939	2,473,086	+ 241,853	"	105½	101½	104½	7½	
	Rohilkund & Kumaon	571	Oct., 1942	60,375	+ 10,969	4	60,375	49,405	+ 10,969	"	342	290	358½	4½	
	South Indian	2,402	20.6.42	179,171	+ 43,616	12	1,376,295	1,113,057	+ 263,238	"	100	87	101	4½	
Various	Beira	204	Sept., 1942	80,067	+ —	52	905,759	—	—	Prf. Sh.	1½	29 -	3½	Nil	
	Egyptian Delta	607	20.10.42	13,364	+ 1,277	31	224,460	157,047	+ 67,413	B. Deb.	68	45	42	8½	
	Manila	—	—	—	—	—	—	—	—	Inc. Deb.	90½	86½	92½	6	
	Midland of W. Australia	277	Sept., 1942	27,713	+ 7,393	9	84,321	58,977	+ 25,344	"	—	—	—	—	
	Nigerian	1,900	29.7.42	51,026	+ 12,476	19	1,212,844	1,122,822	+ 90,022	"	—	—	—	—	
	Rhodesia	2,442	Sept., 1942	520,353	+ —	52	5,892,152	—	—	"	—	—	—	—	
	South Africa	13,291	3.10.42	789,943	+ 57,895	29	20,933,481	20,072,873	+ 860,608	"	—	—	—	—	
	Victoria	4,774	June, 1942	1,410,451	+ 945,742	—	—	—	—	"	—	—	—	—	

Note. Yields are based on the approximate current prices and are within a fraction of ½%
† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffic is given in sterling calculated @ 16½ pesos to the £
§ ex dividend